An insight into challenges faced by Cotton growers in Karnataka & Andhra Pradesh, with special focus on government initiatives & accessibility of hedging tools

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Abstract: “Are cotton growers in Andhra Pradesh and Karnataka surviving from the risks”? India is considered to be the earliest country in the world for cotton production and manufacture of finest cotton fabrics and as per recent production records, it claims to have highest cotton cultivated area with second place among the cotton producing countries in the world. Cotton being one of the principal crops in India with a major role in the country’s economic growth is providing substantial employment and making significant contributions to export earnings. The cotton cultivation sector in India is engaging around 6 million farmers/growers and about 40 to 50 million people directly or indirectly in the areas relating to cotton cultivation, cotton trade and its processing. In spite of sustainable growth in cotton production, the lives of small and marginal cotton farmers are at stake. Two of every three farm suicides happening in the country are from states like Andhra Pradesh (A.P.), Maharashtra, Karnataka and Punjab due to high levels of indebtedness and helplessness at the situation where cotton is cultivated majorly in dry lands. In 2012-13, 68 per cent of all the 13,754 farm suicides took place in Maharashtra, Andhra Pradesh, Karnataka and Madhya Pradesh owing to 70% of cotton cultivation done in dry lands. According to government data & National Crime Records Bureau (NCRB), over 1,313 farmers committed suicide in Andhra Pradesh between 2005 and 2007. In Karnataka, the number stood at 1,003, since 2005-06 till August 2009. The agriculture sector of Karnataka and Andhra Pradesh states is characterized by lack of reliable and timely information. There is also a dearth of analysis on various vital aspects of the business such as latest prices and trends at major national and international markets, demand and supply pattern, scientific forecasting, crop and weather information, and its impact on agriculture and allied sectors. With unfavorable deviations in cotton cultivation leading to reduced income, farmers are facing serious repercussions and risks. It is evident from many studies that risks faced by cotton growers are forcing them to these suicides and these are happening due to the lack of effective risk management measures and tools like derivative instruments.

This conceptual paper is an attempt to study the risks faced by the cotton growers in Andhra Pradesh Karnataka states and tries to answers the questions like what are the factors increasing the risks of cotton growers? Are there tools available to mitigate the risks of producing and marketing the produced? What is the role of government and cotton cooperatives to safeguard the cotton growers’ financial returns and lives with special reference to Andhra Pradesh and Karnataka States.

This paper also reviews the emergence of commodity derivatives, role of these risk management tools in hedging the risks (that) arise in cotton marketing.

Key Words: Cotton Growers, National Crime Records Bureau (NCRB), Risk Management, Hedging, Commodity Derivatives.
Introduction:
Cotton is one of the world’s most widely produced crops and important natural fiber of the 20th century. It is grown in 120 countries, and uses about 2.5% of the world’s suitable land for growing crops (approximately 30-31 million hectares). China, India, Pakistan and the USA together contribute 75% of cotton cultivated in & around 130 countries across the world. India is the second largest producer of cotton accounting to 17% of total world production, while China occupies the first place. India has the distinction of having the largest area under cotton cultivation in the world (12.2 million hectares) constituting about 25% of the world area under cotton cultivation. Many developing countries’ principal crop is cotton and according to the International Cotton Advisory Committee (ICAC), around 20 million farms depend on cotton. India was the first country in the world for domesticated cotton production & manufacturing cotton fabrics. It was recognised as the ‘cradle’ of cotton industry. Popularly known as the ‘white gold’ or the ‘King of Fibers’ enjoys a predominant position amongst all cash crops in India. In India, the area under cotton cultivation has increased from 0.77 lakh hectare during 2002-03 to 94.04 lakh hectare by 2011-12. The production of cotton has increased to 260 lakh bales by 2011-12. Cotton is one of the principal crops in India and it engages around 6 million farmers whereas around 40 to 50 million people depend on cotton cultivation, cotton trade and its processing. The textile sector to which cotton fabric is major component contributes nearly 4% of Indian GDP and is the second largest provider of employment after agriculture, accounting to direct employment for more than 33 million people. India produces more than 75 varieties of cotton with cultivation land occupying about 5 per cent of the total cropped area in the country out of which 98% of overall production comes from just 25 varieties and makes significant share in export income of Indian economy. India has surplus production than the consumption demands from the domestic textile industry and other industries which is exported. As of 2010, India is the second largest cotton producer and consumer with textile industry accounting to 14.4% of the country’s export earnings as of 2008.
Cotton plant gained its significance among many commercial crops, as all parts of the cotton plant are useful for different purposes in different forms. Majorly the seeds and fibre are separated as two major portions of the cotton flower and for every one kg of cotton fibre extracted from cotton flower, around 1.6 kg of cotton seeds are produced from the plant and when cottonseeds are crushed, oil, meal and hulls will form. Cottonseed oil is primarily used in preparation of food items like snacks and bakery products. The remaining crushed seeds are very high in quality proteins and are used as poultry and fish feed, and as a fertilizer. The fiber, or lint, which is used in making cotton cloth, is almost pure cellulose. Linters, which are the short fuzz on the seed, provide cellulose for making plastics, explosives and other products. Linters are used in high quality paper products and they are processed into batting for padding mattresses, furniture and automobile cushions. Cotton linters are highly refined and, they are used in medical, cosmetic products.
Though India has emerged as the second largest producer of cotton in the world, the productivity level is below the world average. Measures and efforts are in place to increase the productivity to bring it closer to the world average from both the producers and government sector. Cotton is grown on a variety of soils. It can grow as a dry crop in the black and medium black soils and as an irrigated crop in the alluvial soils. Cotton is best grown in soils with an excellent water holding capacity and it is grown both under irrigated and rain fed conditions. Aeration and good drainage are equally important, as the crop cannot withstand excessive moisture and water logging. The soil suitable for cotton cultivation is alluvial, clayey and red sandy loam. It is largely cultivated under rain fed conditions requiring a minimum rainfall of 50cm. The planting period of cotton in Indian states normally is from March to September, and the harvesting period is from October to February. Cotton being a major cash crop, it is known for its rigorous & intensive cultivation. It requires production practice of spacing between plant-to-plant and row to row. Cotton crop has special traits like indeterminate growth habit, long duration, crop vulnerability to a multitude of pests and diseases at all stages of growth that leads to high usage of nutrients and crop protection chemicals. Textile mills in Maharashtra and Gujarat states consume nearly 54% of the total consumption of regulated markets. In the total cotton production, nearly 30% to 35% will be routed towards regulated
markets. India exports short staple cotton to U.K. and Japan. Heavy population and constant increase in population is creating higher demand for garment industry and in turn demand for more cotton production in India. Along with private BT companies' researches, the Government of India has also set up centers for cotton research at Nagpur, Coimbatore and Sirsa to bring improvement in the cotton cultivation by providing best seeds and motivating farmers. Government agencies Cotton Corporation of India (CCI), state marketing federations, committees and institutions like Genetic Engineering Approval Committee (GEAC) and the Central Institute of Cotton Research (CICR) are playing an active role in the development of cotton industry. Cotton occupies about 5 per cent of the total cropped area in India. About 74 per cent of the total cotton production area is contributed by five states Gujarat, Andhra Pradesh, Maharashtra, Punjab and Karnataka. Madhya Pradesh, Rajasthan, Haryana, and Tamil Nadu cultivate the remaining output of the crop. Gujarat is considered as the highest cotton-producing State in India with an average production of 95 lakh bales, followed by Maharashtra with 67 lakh bales production. In a decade span from 2000-2001 to 2011-12, Cotton production in India has increased approximately by 90% moving from 156 bales to 295 bales. Parallely, in the same period cotton yield has increased from 304 kgs per hectare to 526 kgs per hectare. Tamilnadu claims the first position in Cotton yield followed by Andhra Pradesh among the cotton growing states. Andhra Pradesh has shown phenomenal growth in cotton production with 25% growth rate per year from 1978 to 1998, then with 17% growth rate until 2002 (12.5% in 2002-03). Districts like Guntur, Prakasam, Adilabad, Kurnool, and Ananthapur in Andhra Pradesh contribute over 10,000 bales of cotton. The main cotton varieties include Laxmi, MCU-5, BL 147, Gaorani, & Mungari. Cotton sowing is in brisk pace in Karnataka with 5.13 per cent of the total area and 4.21 percent of the total production of cotton in the country. Cotton is an important commercial crop of the State covering 5.17% of the total cropped area (0.64 Mha). Most of the production comes from the north Karnataka plateau, including the districts of Raichur, Dharwad, Haveri, Gadag, Bellary, Gulbarga, Belgaum, Hassan, Bijapur, Mysore, Shimoga, Chitradurga and Chikmaglur. Of these, only first two districts together contribute 53 per cent of the state's production of cotton. In the last decade, a notable shift has happened in cotton growing areas in Karnataka from traditional to non-traditional districts like Mysore, Shivamogga, Chamarajanagar, and Davanagere. Main varieties of cotton cultivated in Karnataka state are Varalaxmi, H4, Laxrni, Jayadhar, Hambi. According to the Karnataka state agriculture department, sowing in cotton in 2012-13 is about 68,000 hectares, an increase of 11 per cent over the last year. The entire cotton cultivation in Karnataka was done with Bt cotton variety and farmers got better prices. Despite the uncertainties about Bt cotton usage and production, many farmers are switching over to the hybrid variety in several parts of the state due to high profit and aggressive marketing by private companies. In the 2010-11, Bt cotton was grown on 9.4 million hectares in the country which covers 85.5 per cent of the total 11 million hectares under cotton in India. Maharashtra, Andhra Pradesh, Karnataka, Tamil Nadu and Gujarat are major Bt cotton growing states in the country. Contrary to the perception that youngsters are abandoning farming, Bt cotton technology has attracted young farmers to cotton farming in the country--- a survey by Indian Society for Cotton Improvement (ISCI) said. The survey confirmed wide-spread planting of Bt cotton, occupying 95% of total cotton area, in the rain fed, semi-irrigated and irrigated areas, which has taken place during the last 8-9 years in Maharashtra and Andhra Pradesh and 6-7 years in Punjab. ISCI quoted that "The unprecedented high adoption of Bt cotton is due to substantial and significant benefits to farmers, successful control of dreaded bollworm pests, and its benefits to industry. The benefits from Bt cotton have also come to the nation through enhanced exports and coincidentally protection of environment through substantial reductions usage of pesticides".

Review of Literature:
1.Varangis, Panos; Larson, Don (1996)., in their working paper Dealing with commodity price uncertainty,’ submitted to International Economics Department, World Bank, talked about the derivatives and tackling the price uncertainty of commodities. They pointed out that liberalization in commodity markets has brought profound changes in the way price risks are allocated and managed in
commodity subsectors. The success of market reform depends on the ability of the emerging private sector to make full use of the available range of modern commodity marketing, price risk management and financing instruments. They opined that as farmers do not generally have access to these instruments, intermediaries must be developed. Larger private traders and banks are in the best position to become these intermediaries.

2. In the report ‘Income Risk Management in Agriculture’, OECD Workshop on Income Risk Management, held in Paris on 15-16 May 2000 stressed in the outcome from a study in USA states that when a producer combines a forward sale with the purchase of crop insurance, the probability of low revenue is reduced dramatically for each of the locations, compared with the no-strategy case. The cost-effectiveness of futures contract and options to protect farmers against price risks is contingent on yield variability, on the correlation between yield and price variability (natural hedge) and on the distance from markets. In case of high yield variability, production becomes less predictable, consequently a farmer may only hedge a small volume in order to avoid having to buy additional products to fulfill his futures contract in case of low yields. In this scenario, the hedge ratio, i.e. the optimal share of actual production to be hedged, and the risk reduction efficiency is low. The need and acceptance of risk-hedging instruments depends on the strength of negative relationship between yield and price, called the “natural hedge”, for a particular commodity in a particular region. For instance, widespread low corn yields can cause prices to increase significantly. Conversely, low prices are often associated with bumper-crop years. This partially “offsetting” relationship between prices and yields tends to stabilize farm revenues over time. Yield and price variations are less likely to offset each other where the natural hedge is weak.

3. Vijaya Switha Grandhi, Alec Crawford in their article 'Price Volatility in the Cotton Yarn Industry: Lessons from India', discussed the impacts of cotton yarn price volatility on handloom weavers, and the public and private interventions that have been employed to address them. Authors pointed out that the efforts to date had been sporadic and disjointed, with the issues associated with cotton yarn price volatility often marginalized by policy-makers more focused on interventions in the cotton sector. They mentioned that interventions to date have included pricing controls, technological improvements, decentralization in the spinning sector, vertical integration and micro-level yarn stock maintenance schemes. They believed that the failure of interventions to make a significant impact pointed to the need for a more integrated approach to tackling cotton yarn price volatility. In their paper authors studied importance of the cotton industry to India, and cotton yarn price volatility that affects each actor in cotton supply chain.

4. In the article, ‘Agri history of cotton in India’, Dr. V. Santhanam & Dr. V. Sundaram discussed about the history of introduction of cotton into India in the 18th century AD. They have discussed on how the cotton production and industry has grown in India from the introduction of the crop to the last decade of the 20th century. They quoted that, India had gained a pride of place in the global cotton statistics with the largest cropped area of 8.9 million in 1996-97, growing the most diverse cultivars in terms of botanical species and composition, producing the widest range of cotton fiber quality suitable for spinning 6’s to 120’s counts yarn, and supporting the largest agro-based national industry of the country. The article presents an overview of the ancient origins of the indigenous cottons of India, the recorded history of the crop from the early introductions to their rapid spread of cultivation in response to export and domestic needs during the pre-independence period (1900-47). And the spectacular advances in quantitative and qualitative composition, to support the requirements of the national textile industry after independence (1947-97).

5. In the report, ‘Enabling Farmers to Leverage Commodity Exchanges’, submitted by Cardinal Edge Management Services (P) Ltd to Multi Commodity Exchange of India Ltd, discussed on the participation of farmers in futures trading had revealed ‘optimistic though pragmatic’ views about scaling-up of initiative. The scaling-up was expected to augur well for all the relevant stakeholders, if
the viewpoints of the farmers can be incorporated in a reasonable way for facilitating them to leverage commodity exchanges for hedging their price risks. Cardinal Edge Management Services (P) Ltd through its pilot project which was undertaken to arrive at a working model for farmer participation in commodity derivatives trading, has identified that various facilitating agencies like the Commodity Exchanges, Forward Market Commission, Development Funding Agencies, NGOs/VOs, Cotton Industry and Agri-input Companies had an instrumental role for ensuring the convergence between the available instruments and the farmers requirement with due safeguards for protecting the interests of both the stakeholders, ensuring long term linkages with Cotton Industry for standardization of production and market operations. Cardinal Edge Management Services (P) Ltd has identified that provision of long term financial, technical and capacity-building support to the farmers for meeting the deliverables and benchmarks agreed has to be there.

6. In the article ‘Farmer Risk Management and Futures Markets’, Jean Cordier mentioned about the proper mechanism to hedge price risks, advantages and disadvantages of existing mechanism. He claimed that the insurance mechanism relies on collecting premium regularly from a large number of clients and pooling. Premiums were used to compensate for losses when they occur, up to a level set in advance, and to cover for administrative costs and profit and therefore, risk is spread over a large number of exposure units to be insurable. In addition, risks should not be too highly positively correlated or so high as to make premiums unaffordable. The resulting losses in case of occurrence of event should be accidental and measurable. In the wake of these reasons, price risk is better managed using futures markets than insurance markets because it affects all producers of one commodity at the same time. Catastrophic risks are also difficult to insure privately because loss events are not independent, can affect large areas and be extremely costly.

7. Amrutha C.P (2009), in her doctoral thesis, ‘Market Information System and its Application for Agricultural Commodities in Karnataka State – A Case of Onion’, opined that market information is an important facilitating function in the agricultural marketing system. It facilitates marketing decisions, regulates the competitive market process and simplifies marketing mechanisms. 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. Improved information should enable traders to move produce profitably from a surplus to a deficit market and to make decisions about the viability of carrying out storage where technically possible. She has quoted through her research that, at present, the information is disseminated through various media like radio, newspapers, blackboard display and public address system at market yards. The information provided by these methods is stale and does not help the farmers sufficiently in taking decisions in marketing their produce. The farmers are also not able to know about the prices prevailing in other markets, as the market committees are able to disseminate information in respect of their own markets only. The farmers are therefore, left with no alternative but to dispose off their produce in the nearest market, even at uneconomic prices.

8. Sendhil R, Amit Kar, Mathur V C and Girish K Jha in their article, ‘Profile and growth of agricultural commodity futures in India’, discussed on the introduction and growth of agricultural commodities and came out with the advantages and uses of agri-commodity derivatives. They quoted that after the establishment of organized commodity exchanges in 2003, growth in volume and value of traded agricultural commodities picked momentum and was more pronounced till 2006. Later it declined sharply due to the ban imposed on few commodities owing to the fear of inflation and other market sentiments. Finally, the growth regained its momentum till now due to strong economic fundamentals in the commodity sector. This increased the variability in the trade volume and value, and is reflected explicitly in the instability index. The present study revealed positive growth in wheat, maize, barley, mustard, cotton seed oil cake, cumin, pepper, chilli and kapas during 2009-10 owing to the surplus production (2009-10) and rising market demand of these commodities. On the contrary, soya oil, soybean, castor, crude palm oil and guar seed registered negative growth for trade quantity.
and value during the same period. From inception of trade, positive growth was noticed in soybean, mustard, cotton seed oil cake, turmeric, cumin, pepper, guar seed and guar gum. Significant negative growth was observed in castor and chilli right from the date of inception. Instability analysis indicated that variation is higher for the whole period compared to 2009-10 with the exception of pepper and sugar. This is due to the price fluctuations in the global and domestic markets that have a carryover effect on the commodity futures. Analysis on the nature of distribution showed that baring wheat, maize, cotton seed oil cake, chilly (quantity), turmeric (value) and gur (quantity) rest of the commodities showed a positive skewed distribution in 2009-10. The overall analyses indicated that futures trading exhibited significant positive growth coupled with instability in agricultural commodity trade.

9. In the article, ‘The Role of Derivatives in The Commodity Market’, Soumya Mukesh, discussed the history of commodity derivative market in India. Author discussed about the reintroduction of commodity derivative markets and the current trends, strong growth potential of the market, the actual growth trajectory, the attitude of the policy makers and the efficiency of the regulatory mechanism. Author said that investing directly in the agricultural products and commodities gives the investor a share in the commodity components of the country’s production and consumption. Money managers and average investors, however, usually prefer commodity derivatives rather than commodity themselves. The average investor does not want to store grains, cattle, crude oil or metals. A common investment objective is to purchase indirectly those real assets that should provide a good hedge against inflation risk.

10. In article ‘Problems and Prospects of Agricultural Marketing in India: An Overview’, authors A. Vadivelu and B.R. Kiran mentioned about the agri marketing and facilities available to farmers to sell the produced. They pointed out that there are many kinds of agricultural products produced in India and the marketing of all these farm products generally tend to be a complex process. They felt that suitable marketing system should be designed so as to give proper reward or return to the efforts of the tiller of the soil. In the article, they focused on importance of market information as a means of increasing the efficiency of marketing system and promoting improved price formation. In the authors’ perspective, 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. They felt the need of creating 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.

Need for the Study:
Cotton growers/farmers are facing problems in production and marketing of cotton produced. Growers’ aggressive production practices like cultivation in semi dry lands and excess usage of Bt seeds often lead to a high expenditure and high inputs, which leads to change in crop returns and profitability. Excess usage of fertilizers and chemicals will bring down soil natural fertility and results in pest resurgence, health and environmental hazards. Heavy and untimely rains along with Bt seeds are also major causes in productivity variation among all states where cotton is produced. Though Andhra Pradesh and Karnataka are the major states for cotton production, the farmers are facing problems in turning the production into profits. In spite of measures taken by Government of India, suicides are more in the cotton farming community in these two states. This study tries to explore options available for cotton growers to cash their labour and production in cotton.
Objectives of the Study:
1. To know about the cotton and its growth in India in general and Andhra Pradesh & Karnataka states in specific.
2. To understand the problems faced by the cotton producers in Producing & Marketing.
3. To study the risk tools available for cotton growers

Research Methodology:
Research methodology adopted in this paper is partly based on theoretical concept & partly empirical study that deals with the problems faced by cotton growers of Karnataka and Andhra Pradesh states in India, the role of the government to save the farmers form suicide decisions and risk management tools available to hedge the risks faced by these farmers. Data was collected from the secondary sources like Articles, journals, research works done by various scholars, in-house journals, Magazines, and explored from books and website related to agri marketing and derivatives.

Analysis and Finding:
Marketing of agricultural produce which involves moving agricultural product from the farm to the consumer, has not gained as much importance as the agricultural production in India unlike developed countries. Generally in the developing countries, the agricultural marketing services will be attached to their respective agricultural ministries which help in development of market information, infrastructure development, marketing extension and training in marketing. Agricultural ministries with its supportive policies, legal, institutional, macro-economic, infrastructural environment focuses on agribusiness. Indian farmers face the problem with disposal of their produce and this problem is gaining equal importance as the modern production technology adoption. Supply chain involved in reaching each product from the farm to the ultimate consumer plays a crucial role in determining the price of the product and gain to the farmer. Every producer has realised that the evolution of new production technology alone cannot help him in realizing returns without the improvement of agricultural marketing system which requires simultaneous efforts and improvement in both the areas of production and marketing of the produced. Bt technology and other modern techniques which bring high yield and other incentives alone will not attract farmers for longer time unless there is a breakthrough for good and stable marketing system which enables stable returns. Stable prices will induce the cultivators to expand production and increase their marketed surplus. Instability in yield and prices is more in case of commercial crops like cotton, chilli and pepper and it has posed a serious problem in generating stable income to the farmers. If the sustained breakthrough in agricultural sector has to be achieved, the farmers are to be relieved of the risks and uncertainties involved in agricultural production and marketing. Cotton producers in India are no exemption to the risk facing from the other cash crop producers. In Indian cotton production, four major problems have been identified. Low yield is the major constraint across most of the cotton producing states with different soils and climates not matching the requirements. The second constraint perceived by the farmers is high seed cost. With the luring of high yield and promoting by seed companies selling Bt cotton seeds, farmers are forced to pay exorbitant rates. The high cost of Bt cotton seeds is limiting the cultivation by the economically poor farmers though they foresee good returns. Non-availability of quality seeds and pest occurrence are the concerning problems occupying the next ranks. In spite of heavy promotion done by Bt seed companies, farmers feel that even quality seeds are not available with Bt technology and it is the constraint hindering the adoption of Bt cotton production technology. Along with the availability of quality seeds, quantity is the limiting factor even if the quality seeds are identified with Bt technology.

Above all, inadequate market information which is a major means to increase the efficiency of production and marketing of the produce is a considerable problem. Information dissemination is crucial to the farmers to make informed decisions about what to grow, when to harvest, to which market produce should be sent. It helps to estimate the demand for the product and in decision making on storing the product in warehouses till demand arises. It is estimated that the awareness of farmers on different components of market information and its utility was very poor compared to that of traders.
in supply chain who exploit information and gain more. Large price spread, high commission charges and transportation problems are contributing to high risks with the lack of regulated market facilities. As per the bye laws, middlemen should get 2 per cent of the value of produce from the traders as their commission and the farmers need not pay anything as commission. But in reality, the commission agents are receiving commission from both the farmers as well as traders. The farmers are paying to the extent of 2 to 4 percent due to credit link they have with these men i.e. majority of the farmers get the credit facilities from the commission agents both in the form of cash and inputs like seeds, fertilizers and pesticides with an agreement of selling their produce to them only. Non- remunerative prices, lack of grading facilities and large price spread are part of other problems faced by producers. The high price fluctuation during harvesting coupled with immediate cash needs of farmers will make farmers to go for distress sale, which will not fetch remunerative price for their produce. In marketing of the cash crops intermediaries like commission agents, wholesale trader, and village trader are involved in supply chain between the producer and consumer and because of this multiplicity of middlemen, the price spread is larger and margins eaten away by these intermediaries are affecting the producer’s share in consumer rupee. Because of high margins of the middlemen and more number of intermediaries in the marketing of cotton, price received by farmers is less. Generally, the net price received by the producer will be 30% of the total price paid by the consumer in the countries like India whereas it would be 66% in developed nations with systemized agri markets. Most of the farmers do not have accessibility to roads to reach the regulated markets, as infrastructural development in villages of India is still a continuous process in many states. Regulated markets and warehouse facilities are generally at city levels and moving the produced to markets itself is big problem with either bad roads or no roads.

Hybrids give better yield and fetch more returns to the producers, made farmers to adopt hybrid seeds based cultivation. Hybrids culture made crops highly susceptible to pest attack and damage and this was the major issue in most of the regions for all crops since 1993 till Bt seeds occupied the place. Vulnerability of hybrid cotton crop to pests brought frequent crop failures as well as fluctuating and declining yields which forced the farmers to bear additional expenditure for usage of pesticides. It is observed that over 150 species of pests are attacking cotton crop at various stages of its growth leading to severe reduction in yields and resulting in massive pesticide usage by farmers with high cost of cultivation. It is estimated that over 55 percent of the pesticides sold in the country are used only on cotton. Multi National Company (MNC) like Monsanto, a US based company came up with Bt technology seeds to help the famers who are in dire need of a new technology and seeds to lend them a hand from the troubles of hybrid seeds. Government of India facilitated the inflow of Bt seeds with much opposition and hesitation in 2002 for 3 years period. With the benefits from Bt usage, farmers started unauthorised usage as they found the technology reduces the pesticides usage and increases the effective yield. Much promoted Bt seeds usage is said to have advantages of reduction in the use of insecticides by almost 50%, reduction of the harmful effect on the environment, good quality of cotton fiber at par with that of non-Bt cotton, better yield per unit of input use, and lesser residue of pesticides in the fiber resulting in reduced harmful effects such as allergic reactions. There seems to be negative implications of Bt seeds like impact on eco-system and expensive compared to non-Bt seeds. Monopoly on Bt seed by very few MNCs will cost more to farmers along with usage of insecticides in most of the cases and by-products like Bt cotton seed cake will cause harm to the animals. Bt gene may enter in the human food chain and cause harm, transgenic varieties will lead to disappearance of native varieties and biodiversity in the country, and insects will soon become resistant to Bt cotton making the pest control even more difficult in the near future. Risks associated with all factors affecting the returns to farmers are to be addressed through risk management products and procedures.

Risk management is the process to minimize the losses arising in producing and marketing the cotton through recognising risks associated, separating and prioritizing risks, measuring the likely impacts on yields and implementing a correct risk management practice to minimise the adverse effects of risk on return in terms of price, production and yield variation. Price risk arises when the crop is stored for
future delivery or sales in terms of price change. Production risk arises from the quality variation in production and storing for long time and Yield risk is generated through over and under production than estimated quantities. Yield risk is higher when farmer makes an agreement with an intermediary with a pre-fixed price. In case of under production, producer may need to forego returns in order to deliver promised quantity through purchasing from other sources. In case of over production, demand comes down and need to dispose the balance at cheaper rates in the market. Counterparty risk arises when agreed contract terms are not honoured by either party in delivering the produce or settling the payment.

**Products used in the management of risk in cotton marketing:**
Derivative products have the ability to shift the price risk from producers. Cotton futures are standardized, exchange-traded contracts in which the contract buyer, generally the speculator or intermediary or a consumer agrees to take delivery from the seller, generally the producer, a specific quantity of cotton at a predetermined price on a future delivery date. Cotton producers can employ a short hedge to lock in a selling price for the cotton they produce, while businesses that require cotton can utilize a long hedge to secure a purchase price for the commodity they need. Consumers and producers of cotton can manage cotton price risk by purchasing and selling cotton futures. Speculators assume the price risk that hedgers try to avoid, to profit from favorable cotton price movements. Speculators buy cotton futures when they believe that cotton prices will go up. Conversely, they will sell cotton futures when they think that cotton prices will fall. The prices at which futures contracts are determined by free competition amongst market participants. Futures provide producers, consumers and merchants a means of price risk management. Farmer, a hedger whose principal economic activity is production, trading, processing and consuming physical commodity, uses futures to reduce price risk due to unfavourable market movements. The Kapas futures contract on MCX was identified as the most suitable contract for hedging prices of cotton.

Options are the products with two option strategies for producers, to buy puts against unsold production and buy calls against sold production to create a floor price. A bought option is the right but not the obligation to buy in case of a call option, or to sell in case of a put option. An option contract can give the buyer the choice to fix a favourable price without being obligated to accept the price.

Premium and Discount (P&D) sheets are designed to allow a single price representing a base grade to be quoted for growers with variable qualities being deliverable. The P&D sheet represents the market value of various qualities. In summary, premiums are paid for higher than base grade qualities delivered and discounts are deducted for lower than base grade qualities delivered. P&D sheet values are set based on international market values for various qualities.

International market values for the various qualities fluctuate over time and are affected by supply and demand factors for each quality group causing P & D values to change respectively.

Merchants and banks offer many different types of contracts that enable growers to structure their marketing and risk to a range of specifications and payment terms.

**Benefits of hedging products:**
Though Farmers/growers do not participate directly in commodity markets, they benefit through the price signals emitted by the futures markets and information dissemination done by different stakeholders through different methods. The primary benefit of the commodity derivatives is price discovery mechanism through futures market. The futures markets information reduces seasonal price variation and helps the farmer realize a better price at the time of harvest. Futures information helps the farmer to plan in advance what to cultivate, where to store, when to sell to gain maximum returns and so on. Access to regular information on cotton demand in national exchanges and international exchanges through futures prices enables the farmers to take right and informed decisions on storage options of the cotton. Information makes them to understand the trends in prices and demand make them to retain the product and realize better prices and returns. Regular dissemination of price information by Forward Markets Commission with the help of national commodity exchanges has
made the farmers to track the markets and demand and are making better usage of information in negotiating the prices. Price dissemination happening in all states through display boards on regular basis in all major villages provides a good reference to assess spot prices and bringing farmers and traders at a platform with correct price negotiations and it also created awareness on mechanism of locking-in the desired prices. In absence of futures market, farmers try to manage their risk by collecting the information from local mandis and accordingly planning their process. Lack of storage options and vagaries of weather, cash requirement to repay loans, manage household expenses, preparation for the next season and social obligations, lack of formal credit facilities, marketing avenues push the farmers to sell the crop in absence of the futures markets and information availability. The informal credit sources to the extent of 36-60% per annum, coupled with poor storage conditions leading to usage of more insecticides push the farmers to more risk of loss. Less transportation facilities make the farmers to sell the produce at their doorstep itself at the negotiated prices which make them to lose better returns.

**Situation Analysis:**

Though derivative products reduced risk to the cotton producers, procedural constraints associated with these futures are averted the farmers to enter in to derivative markets. First and foremost constraint in existing cotton contracts for trading is on very few varieties which is limiting all the farmers producing different varieties to participate. As futures are standardized contracts, the deviation from the specifications of contract in terms of quality and variety in the cotton may get rejected by the commodity derivative exchanges from the delivery. Participation of small and marginal farmers on commodity exchange have the procedural hurdles with PAN card, KYC norms, etc. for opening a demat & trading account along with savings bank account. Policy interventions by the Government is having impact on the direction and magnitude of price movements in commodities and discourages genuine market participants and weakens the free-market behavior of commodity markets.

Upfront of high margin amounts as initial margin to the extent of 4% on contract value, and mark to market (MTM) margins are major constraints to farmers who wish to hedge their price risk positions through commodity derivative products. Farmers, who do not have the formal credit facility and depend on local lending, cannot pay these margins. The present trading unit is 4 MT in cotton futures. That is much higher for an individual farmer to enter into futures trading. Non-profit organizations who wish to help farmers as aggregators and want to trade on behalf of small farmers are not allowed to open demat account for trading purposes for any profit making activity as per the government procedures on commodity markets. Because of the low volume trades and positions from villages, brokers will not focus to serve these farmers, as their brokerage amounts are very less and transaction costs are high. Few delivery centres, warehouses across the country under commodity exchanges are also causing the farmers to step back as the crop should be carried to prescribed warehouses in spite of bad transportation facilities available. Addition to this, the kapas contract expires in the month of April and the farmers predominantly tend to sell their harvest during the period of October to February. Taking into account the physical market transactions by farmers, the positions need to be squared off during the time of selling of the produce in the spot market. In case of higher prices than the one at which farmers have entered in futures market at that time, there are chances that farmers may have to book losses in the futures market despite taking due precautionary measures, like stop loss. Though there are possibilities that such losses could have been offset from selling in the spot market, the non-availability of kapas contracts that terminate during the time of selling in the spot market precludes such possibilities. Moreover, there are other issues in case of intra-day high volatility such as providing timely notice to farmers on margin calls, arranging for money at a short notice and timely transfer of margin call amount to their trading account. In absence of prompt actions during these conditions, farmers may face the risk of liquidation or squaring off of their positions.
Supportive measures taken by Indian government in favour of cotton producers:

Government of India is taking measures to bailout the farmers from the risk faced by them through different policies to produce better qualities and quantities and market the produced. It is providing support prices, and fixing the Minimum Support Price (MSP) for cotton and at this price government is procuring cotton from farmers through its agencies like Cotton Corporation of India (CCI) and Maharashtra State Co-operative Cotton Growers’ Marketing Federation. Government is taking initiatives to expand the cotton cultivation area and productivity through substantial measures. It is into research and development to bring out high yielding varieties along with allowing the MNCs to sell their Bt seeds. Government is trying to bring out drastic improvement in productivity, quality through cultivation of hybrids, Bt cotton varieties, latest production technologies and plant protection technologies, adoption of scientific and agronomic practices by farmers, increase in area under irrigation seeds. Government has brought policies, giving greater force to research and development in cotton, encouraging use of quality seeds and pesticides and price support through CCI. The Cotton Corporation of India Limited is nominated as the Nodal Agency of Government of India, for undertaking Price Support Operations, whenever the prices of kapas (seed cotton) touch the support level. The CCI Operations cover all the cotton growing States in the country comprising Punjab, Haryana and Rajasthan in Northern Zone; Gujarat Maharashtra and Madhya Pradesh in Central Zone and Andhra Pradesh; Karnataka & Tamil Nadu in Southern Zone as also in Orissa. The Cotton Corporation of India (CCI) is procuring large quantity of cotton as the market prices ruled below the MSP from farmers in all states.

Conclusion:

India being second largest producer of cotton with number of varieties and occupying a good market share in cotton exports is not providing good returns to cotton producers in all cotton growing states. Andhra Pradesh and Karnataka farmers cultivating cotton under a major portion of cultivation land are subjected to different risks associated with production and marketing of the cotton produced. Though very recently Karnataka farmers have seen good returns through Bt seeds cultivation, they have suffered a long time with different risks right from selection of seed to selling the harvest to traders. Problems like formal credit facility, seed price, pests attack, heavy usage of insecticides and pesticides, un-seasoned rains, water shortage, and fertilizers are the problems faced by these farmers at the cultivation and harvesting level. Above all, when the crop is yielded, quantity and quality issues bother the farmers much. Due to unavailability of formal markets at reachable places to sell the cotton crop, transportation and expenditure burdens to shift to markets, insufficient storage facilities, warehouses at near places are making the farmers to face the risk of selling the produced at good prices. Interest on unorganised loans, compelled agreements with agents and local merchants are forcing them to deliver the produced at cheaper prices which is realizing them half of the returns what they are to realize in proper markets.

Indian government has paved way to commodity derivatives in agricultural products in order to help the farmers to hedge their risks through trading in futures. Under the Forwards Markets Commission with the help of National Commodity Exchanges, it is disseminating the demand and price information through display boards in villages and mandis. The information on the boards, futures prices signal the farmers to choose the crop, time to cultivate, when and where to store, and price at which they need to sell in the spot market or in the futures market. Derivatives help the cotton farmers to reach the international demand information along with the international prices which are reference values to pre decide on producing and marketing. Government of India along with allowing commodity trading in cotton in exchanges, is supporting farmers to cultivate the cotton through advanced technology and scientific methods of cultivation and focussing on research and development in area of cotton to give good quality seeds which yield higher quantities. It is providing minimum support price to cotton produced in order to bailout the farmers who are at mercy of agents and intermediaries whenever there is demand shortage due to international impact on cotton exports. Through CCI the government is purchasing and collecting 80-90% of production whenever it is necessary.
In spite of measures taken by the government in supporting cotton farmers, maximum suicidal cases are seen in cotton cultivating regions only. The soil, scarcity of water, sometimes un-seasoned heavy rains, floods are making the famers of Andhra Pradesh and Karnataka to take hasty decision of suicide leaving the families at distress. Requirement of heavy pesticides, costlier Bt seeds and greed of higher yield even if climate and soil are not suitable to cotton crop are some of the reasons pushing the farmers to face the risk of heavy losses.

Though cotton futures are designed to hedge the risks of price variation, they have shortcomings in the form of procedural constraints like demat account, PAN card, KYC norms which are a distant facilities to farmers. Minimum lot sizes of cotton, initial margins to the extent of 4% on contract value, huge MTM margins are making farmers helpless from participating in hedging processes. Minimum number of cotton delivery centres, few authorized warehouses, quality constraints, standardized norms in contracts, less support from the exchange brokers, and different maturity dates on futures contracts are some of the other problems causing farmers to keep them away from taking positions in the cotton futures.

Along with the existing policies and procedures of government on cotton sector development, more measures are required in the areas of equal attention on diversified production activities as well as diversified marketing aspects of agricultural commodities. 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. Restriction on participation of financial institutions (Banks, Mutual Funds, FIIs) also undermines the liquidity on commodity exchanges and allows trading on many contracts to be exposed to price manipulation and market cornering. More focus on training the farmers on usage of derivatives to hedge risks individually and in aggregate manner has to be focussed.

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