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CONTENTS

Sr. No.	TITLE & NAME OF THE AUTHOR (S)	Page No.
1.	EDUCATIONAL LEADERSHIP, MANAGEMENT AND PAKISTAN IN 2050 <i>TAIMOOR BASHARAT & DR. MUHAMMAD RAMZAN</i>	1
2.	RESEARCH IN DEVELOPMENT ARENAS <i>ROMAZA KHANUM</i>	6
3.	COMPARATIVE EVALUATION OF THE RELATIONSHIP BETWEEN STOCK RETURNS FIRM WITH PRICE COEFFICIENTS: CEMENT LISTED ON STOCK EXCHANGE <i>MOHAMMAD REZA ASGARI, SHAHIN SAHRAEI & AHMAD GHASEMI</i>	10
4.	IMPACT OF STOCK MARKET DEVELOPMENT ON ECONOMIC GROWTH: AN EVIDENCE FROM SAARC COUNTRIES <i>MUHAMMAD ENAMUL HAQUE</i>	15
5.	PREDICTING SUKUK DEFAULT PROBABILITY AND ITS RELATIONSHIP WITH SYSTEMATIC AND UNSYSTEMATIC RISKS: CASE STUDY OF SUKUK IN INDONESIA <i>MISNEN ARDIANSYAH, IBNU QIZAM, RAZALIHARON & ABDUL QOYUM</i>	21
6.	POVERTY ALLEVIATION IN THE INFORMAL SECTOR AS A CATALYST FOR NIGERIA'S ECONOMIC GROWTH <i>MARTINS IYOBOYI</i>	28
7.	THE MACROECONOMIC IMPACT OF TRADE ON ECONOMIC GROWTH OF NIGERIA <i>ANTHONIA T. ODELEYE</i>	36
8.	A STUDY OF OPERATIONAL EFFICIENCY OF SELECTED PUBLIC SECTOR BANKS IN INDIA – ISSUES AND CHALLENGES <i>DR. BHAVET, PRIYA JINDAL & DR. SAMBHAV GARG</i>	42
9.	SETTING UP LOCAL REINSURANCE COMPANY IN ETHIOPIA: ANALYTICAL REVIEW <i>ASNAKE MINWYELET ABEBE</i>	49
10.	PROBLEMS OF SUGAR COOPERATIVES IN MAHARASHTRA <i>DR. DANGAT NILESH R.</i>	55
11.	ANALYSIS OF ASSET QUALITY OF PRIVATE SECTOR INDIAN BANKS <i>SULTAN SINGH, MOHINA & SAHILA CHOUDHRY</i>	58
12.	ORGANIZATIONAL COMMITMENT OF MANAGERS OF PUBLIC SECTOR BANKS IN INDIA: AN EMPIRICAL STUDY <i>DR. KANWALDEEP KAUR</i>	61
13.	A PENTAGON PERFORMANCE SCENARIO OF SUGAR SECTOR IN INDIA <i>DR. GAJANAN MADIWAL</i>	68
14.	JOB SATISFACTION OF EMPLOYEES – AN EMPIRICAL ANALYSIS <i>DR. U.JERINABI & S. KAVITHA</i>	72
15.	COTTONSEED UTILIZATION PATTERN AND AVAILABILITY OF COTTONSEED FOR PROCESSING <i>DR. T. SREE LATHA & SAVANAM CHANDRA SEKSHAR</i>	77
16.	NATURE AND EXTENT OF AGRICULTURAL TENANCY IN ANDHRA PRADESH - A CASE STUDY IN TWO VILLAGES <i>DR. S. RADHA KRISHNA</i>	80
17.	A STUDY ON SELF HELP GROUPS – BANK LINKAGE PROGRAMME IN INDIA <i>DR. A. JEBAMALAI RAJA & M. SUVAKKIN</i>	86
18.	FACTORS INFLUENCING ATTRITION <i>RISHU ROY & ARPITA SHRIVASTAVA</i>	89
19.	REGULATORY FRAMEWORK FOR MANAGING THE MICRO FINANCE IN INDIA PARTICULARLY IN MEGHALAYA <i>MUSHTAQ MOHMAD SOFI & DR. HARSH VARDHAN JHAMB</i>	95
20.	EFFICIENCY MEASUREMENT OF INDIAN PUBLIC AND PRIVATE SECTOR BANKS IN THE CONTEXT OF DOWNGRADED RATINGS <i>DR. KULDIP S. CHHIKARA & SURAKSHA</i>	99
21.	COGNITIVE STYLES AND MULTI-MEDIA LEARNING: A QUASI-EXPERIMENTAL APPROACH <i>DR. RANJIT KAUR & SAROJ BALA</i>	107
22.	ROLE OF CREATIVE MANAGEMENT AND LEADERSHIP IN ENTREPRENEURSHIP DEVELOPMENT <i>VIKAS BEHAL & PUJA BANSAL</i>	112
23.	POSITIONING INDIA IN THE GLOBAL ECONOMY: AN OVERVIEW <i>DR. JAYA PALIWAL</i>	116
24.	AGRICULTURE FARMERS AND FINANCIAL INCLUSION WITH SPECIAL REFERENCE TO BAGALKOT DCC BANK IN KARNATAKA STATE <i>DR. H H BHARADI</i>	121
25.	MINREGA AND RURAL POVERTY: A CASE STUDY OF NILOKHERI BLOCK IN HARYANA PROVINCE <i>PARDEEP CHAUHAN</i>	125
26.	EXTERNAL DEBT OF MALDIVES: GROWTH AND ECONOMIC GROWTH <i>DR. G. JAYACHANDRAN</i>	129
27.	CORPORATE GOVERNANCE DISCLOSURE PRACTICES IN G N F C LTD. <i>DIVYANGKUMAR VINODBHAI BRAHMBHATT</i>	139
28.	NRM POLICY OF NABARD AND SUSTAINABLE DEVELOPMENT BIRDS-EYE VIEW ON AURANGABAD DISTRICT <i>DR. ANIL BABURAO JADHAV</i>	142
29.	MANAGEMENT OF NON-PERFORMING ASSETS: A COMPARATIVE STUDY OF PUBLIC AND PRIVATE SECTOR BANKS <i>DR. SAMBHAV GARG, PRIYA JINDAL & DR. BHAVET</i>	146
30.	PORTFOLIO SIZE AND PORTFOLIO RISK: EVIDENCE FROM THE INDIAN STOCK MARKET <i>MEENAKSHI RANI</i>	152
	REQUEST FOR FEEDBACK	156

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COTTONSEED UTILIZATION PATTERN AND AVAILABILITY OF COTTONSEED FOR PROCESSING**DR. T. SREE LATHA****PROFESSOR****DEPARTMENT OF BUSINESS ADMINISTRATION****ST. ANN'S COLLEGE OF ENGINEERING & TECHNOLOGY****CHIRALA****SAVANAM CHANDRA SEKHAR****ASSOCIATE PROFESSOR****DEPARTMENT OF BUSINESS ADMINISTRATION****ST. ANN'S COLLEGE OF ENGINEERING & TECHNOLOGY****CHIRALA****ABSTRACT**

Cottonseed, a by-product of cotton, is considered as 'Golden Goose' since it is a valuable source of linters, hulls, cake, extraction and edible oil. In India, cottonseed is generally utilized for sowing purpose, for direct feeding to the cattle and for processing in small and large mills. Barring a trivial provision for sowing and direct feeding, about 86 percent of cottonseed is available for processing. A detrimental practice of feeding whole cottonseed and another orthodox practice of feeding undecorticated oilcake to the cattle were prevalent in stray cases of some north Indian states. Virtually it loses precious cottonseed by-products. At this juncture, a modest attempt is made in this paper to divulge cottonseed utilization pattern and availability of marketable surplus after retaining the seed for sowing and direct consumption. A concise analysis on cottonseed availability for processing and washed oil production is encompassed in this paper.

KEYWORDS

Cattlefeed, detrimental practice, direct consumption, national loss, sowing purpose.

INTRODUCTION

People called cotton as 'White Gold' (Savanam and Bhaskara, 2010a). It is the most important natural fibre which provides venerable foreign exchange to meet the balance of payments and facilitates a number of employment opportunities to the society at large (Savanam and Bhaskara, 2010b). The area of cotton cultivation in India is about 9.5 Mha (Savanam *et al.*, 2010).

Cottonseed, a by-product of cotton, is produced in as many as nine states in India (Sethi and Dharmarajulu, 1957). It is a valuable source of edible oil, cake, linters and hulls (Dantwala, 1947). The whole cottonseed contains 15-20 percent oil and about 30-38 percent of kernel, depending on the quality of seed and the species (Savanam and Bhaskara, 2011b). Some 6 to 8 percent of cottonseed is needed for sowing purposes and another 8 to 10 percent as feed for working cattle, milk cows or buffaloes. A very small quantity is crushed locally by village ghanis and the oil is used for lighting, and for lubrication of cart wheels. The remaining seed finds its way to large and small mills for crushing (Achaya and Murti, 1974).

The average annual production of cottonseed is about 7.82 million tonnes (Mt) during the past decade. Estimates of production of oilseeds and other agricultural produce are approximate. Especially in case of cottonseed, the production figures are arrived at on the basis that a uniform ginning ratio of one-third lint to two-thirds seed exists, which does not hold good for all varieties or even for the same variety of cotton in different localities and years (Achaya and Murti, 1974). Usually, cottonseed production is estimated on the basis of the production estimate of cotton made by the Cotton Advisory Board (CAB). Cottonseed processing season generally commences in the month of November and ends in the following month of October. Thus, an overview on production of cotton and cottonseed and the availability of cottonseed for processing after making provision for sowing and feeding to cattle and washed cottonseed oil obtained in the processing industry inevitable.

COTTONSEED UTILIZATION PATTERN

In India, cottonseed is generally utilized for the following purposes:

1. Feeding whole cottonseed to the cattle
2. Sowing purpose
3. Processing for obtaining oil as well as by-products like linters, hulls, cottonseed cake and cottonseed extraction.

Although no empirical studies on pattern of cottonseed utilization have been carried out so far, it is estimated that about 1.2 to 1.4 Mt of cottonseed still utilized as a cattlefeed and/or for sowing purpose. It also recorded that small quantity of cottonseed has exported occasionally.

FEEDING WHOLE COTTONSEED TO THE CATTLE: A DETRIMENTAL PRACTICE

Research carried out at the National Dairy Research Institute (NDRI), Indian Council of Agricultural Research (ICAR), Karnal reveals that it is not beneficial to feed cottonseed whole to the cattle. The feed nutrient utilization was found to be the best when cattle are fed with decorticated oilcake (DOC). Oil content in the cottonseed is virtually not of much use to the cattle. Feeding whole cottonseed directly to the cattle is an age old practice followed in India although its utility has not been established scientifically. It is myth that oil content in the cottonseed raise milk yield or fat percentage in the milk. Oil is generally required for generation of energy. Cattle themselves generate this energy during rumination. The ruminants have a specialized digestive system with compound four compartment stomach. The energy is generated while cattle carry on rumination of the fibrous portion of the feed. Therefore, feeding cottonseed directly to the cattle as such virtually amounts to wasting major portion of the oil content and also about 4 to 5 percent linters (quality cellulose material) which has significant commercial value and strategic importance in the defence production. Fortunately, the quantity of cottonseed utilized for direct feeding to cattle in India has substantially come down since majority of the cotton area is now under Bt (*Bacillus thuringiensis*) cotton which minimizes the requirement of cottonseed for sowing purpose. However, it understood that the practice of feeding cottonseed by soaking cottonseed overnight in water and then feeding to the cattle is still prevalent in stray cases in Haryana, Uttar Pradesh, and Punjab etc.

FEEDING UD CAKE TO THE CATTLE: A NATIONAL LOSS

Feeding UD cake to the cattle is another orthodox practice in India. About 95 percent of the cottonseed available for processing is simply crushed through traditional mechanical means (Mansingka, M.P., 1970). The oilcake obtained by this traditional (crude) method is called as undecorticated oilcake (UD cake). It has no market abroad, and the Indian production of this commodity is presumably utilized within the country as cattlefeed. UD cake contains about 7 percent oil which is virtually not required by the cattle and considered as waste. There is an estimated loss of cottonseed oil around 0.6 Mt to 0.7 Mt every year on account of this practice (Savanam and Bhaskara, 2011a). Therefore, it is considered as a serious national loss.

The fixation of prices for oilcakes in Indian trade is not yet rationalized on the basis of protein content, and UD cake fetches a price, in relation to that of DOC which is not in keeping with their levels of protein. In fact, in the current domestic price structure, it is economically more advantageous to the processor to make UD cake than DOC.

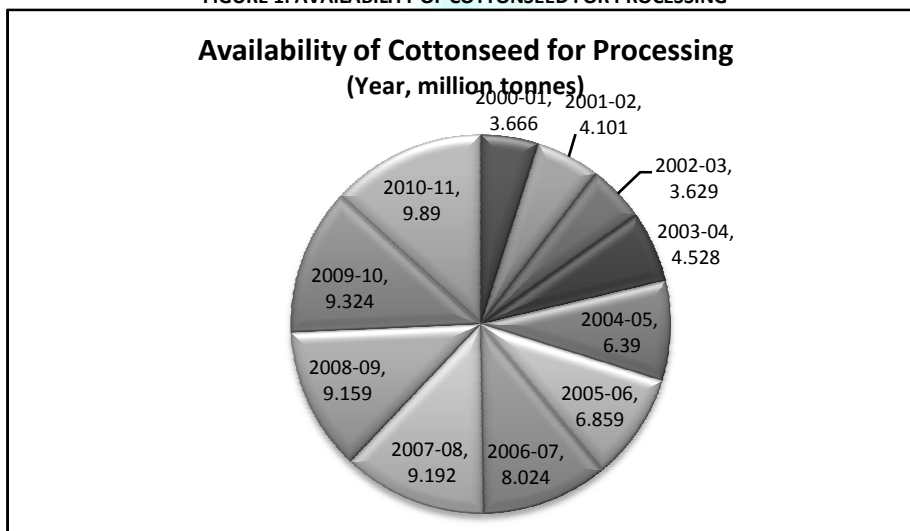
A CONCISE ANALYSIS ON AVAILABILITY OF COTTONSEED

TABLE 1: AVAILABILITY OF COTTONSEED FOR PROCESSING AND ESTIMATED PRODUCTION OF WASHED COTTONSEED OIL

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Cotton production (million bales) (bale – 170 kg each)	14.000	15.800	13.600	17.700	24.300	24.100	28.000	31.500	29.150	29.500	31.200
Cottonseed production (million tonnes) (@333 kg/bale)	4.666	5.211	4.490	5.891	8.092	8.025	9.325	10.490	9.657	9.824	10.390
Retained for Sowing & Direct Consumption (million tonnes)	1.000	1.110	0.859	1.366	1.701	1.166	1.301	1.300	0.500	0.500	0.500
Marketable surplus available for processing (million tonnes)	3.666	4.101	3.631	4.525	6.391	6.859	8.024	9.190	9.157	9.324	9.890
Production of washed cottonseed oil (million tonnes)	0.366	0.413	0.363	0.453	0.639	0.754	0.883	1.213	1.113	1.200	1.247

Source: All India Cottonseed Crushers' Association Annual Reports, Mumbai

FIGURE 1: AVAILABILITY OF COTTONSEED FOR PROCESSING



As per the data in table 1, 4.666 Mt of cottonseed was produced in the year 2000-01. Of which 21.43 percent (1 Mt) was retained for sowing purpose and for direct feeding to the cattle. Thus, the availability of cottonseed for traditional and scientific processing was 78.57 percent (3.666 Mt). Through these two processing means 0.366 Mt washed cottonseed oil was produced during the year.

Cottonseed production has recorded at 5.211 Mt in the year 2001-02, a rise of 11.68 percent as compared to the previous year. Out of this, 21.30 percent retained for sowing and feeding to the cattle. After deducting this provision 4.101 Mt cottonseed was available for processing industry, 11.86 percent rise against previous year. Washed oil production has increased to 0.413 Mt from 0.366 Mt in previous year, a net increase of 0.047 Mt.

The slump in production of cotton due to unfavorable weather conditions and inadequate rains in 2002-03 led reduction in cottonseed production and recorded at 4.490 Mt. After withholding provision of 0.859 Mt for sowing and direct consumption, cottonseed available for processing endured at 3.631 Mt, the lowest in the past ten years. A shortage of 11.46 percent as compared to previous year was really a matter of concern. Production of cottonseed washed oil too suffered severely during the year and recorded at 0.363 Mt, down 0.050 Mt to previous year.

Due to large size of cotton crop in the initial year of Bt cotton, cottonseed production recouped in 2003-04 and recorded at 5.891 Mt, a substantial rise of 31.2 percent from previous year. After the provision for sowing and direct consumption, marketable surplus available for processing has risen to 4.525 Mt, high 24.62 percent. Similarly, cottonseed washed oil produced in the country also recorded higher at 0.453 Mt, 24.79 percent more than previous year.

Due to rise in cotton acreage under hybrids & Bt cotton and productivity, cottonseed production has reached a record level of 8.092 Mt in the year 2004-05. A substantial 37.36 percent growth from previous year was a matter of rejoice. Besides, cottonseed retained for sowing and direct consumption to the cattle has also mounted to 1.701 Mt, all time high. However, a record level of marketable surplus 6.391 Mt was available to processing industry. This significant 41.23 percent rise from previous year astonished processing industry. Similarly, a proportionate increase in cottonseed oil production also recorded at 0.639 Mt as compared to 0.453 Mt in previous year, a rise of 41.05 percent.

Because of shrinkage in area under cultivation due to unexpected heavy unseasonal rains in the year 2005-06, cottonseed production has plummeted slightly to 8.025 Mt from 8.092 Mt in previous year. Utilization of conventional cottonseed for sowing and direct consumption to the cattle started diminishing and recorded at 1.166 Mt, a net down 0.535 Mt. This led increase in marketable surplus for processing and figured at 6.859 Mt. Cottonseed oil production too enriched to 0.754 Mt from 0.639 Mt in past year.

Owing to surge in cottonseed production in the country marketable surplus available for processing industry has amplified to 8.024 Mt in the year 2006-07 from 6.859 Mt in the previous year, a rise of 16.98 percent. Contrary, cottonseed retained for sowing and direct consumption to the cattle has tumbled to 1.301 Mt from 1.166 Mt in preceding year. Production of cottonseed oil during the year has recorded high at 0.883 Mt from 0.754 Mt in earlier year, a net rise 0.129 Mt.

Wide-spread realization of Bt cotton throughout cotton growing area in the country has rocked cottonseed production to a noteworthy level at 10.490 Mt in the year 2007-08. This all-time high production made comfort to improve marketable surplus to 9.190 Mt from 8.024 Mt in preceding year, a rise of 14.53 percent. Provision for sowing and direct consumption remained constant as is previous year. First time in cottonseed history, washed oil production has crossed 1 Mt landmark and recorded at 1.213 Mt, a rise of 37.37 percent from previous year.

In 2008-09, there was a plunge in cottonseed production due to the erratic rains and severe drought conditions prevailed almost throughout the country. Cottonseed production has recorded at 9.657 Mt as compared to 10.490 Mt in 2007-08. Cottonseed retained for sowing and direct consumption has considerably minimized to 0.500 Mt because of Bt technology realization in farm community. As a whole, huge quantity of 9.657 Mt cottonseed was made available to the processing industry. Besides, washed cottonseed oil production has slipped down to 1.113 Mt from 1.213 Mt in previous year.

The upsurge in cotton area sown in spite of unfavorable weather conditions led marginal increase in cottonseed production in 2009-10 and recorded at 9.824 Mt as against 9.657 Mt in past year, a trivial rise of 1.72 percent. Provision for sowing and direct consumption remained stable. After subtracting this provision, marketable surplus available for processing recorded at 9.324 Mt as compared to 9.157 Mt in previous year, a net increase 0.167 Mt. A slight increase in washed cottonseed oil also registered during the year and logged at 1.200 Mt.

Despite unseasonal rains and extreme cold waves, cotton production in the year 2010-11 has surged to 31.200 million bales (170 kg each bale). This boosted cottonseed production to a record level of 10.390 Mt. It is quite evident that cottonseed production has crossed 10 Mt milestone second time in the span of four years. This is a matter of exult. Cottonseed retained for sowing and direct feeding remains unchanged for third consecutive year. In addition, marketable surplus has proliferated to a substantial level of 9.890 Mt, all time high. Likewise, washed cottonseed oil production too reached its heights to 1.247 Mt from 1.200 Mt, a net rise of 0.047 Mt.

COTTONSEED DOES NOT FIND ITS DUE IMPORTANCE

Cottonseed does not appear to have acquired its due importance amongst oilseeds grown in India in spite of the fact that its production crossed twice 10 Mt milestones in the years 2007-08 and 2010-11, a record amongst oilseeds. As per the estimate of the Central Organization for Oil Industry and Trade (COOIT) production of cottonseed is the largest of oilseeds, contributing almost 30 percent of the total oilseed produced in the country during 2009-10. However, cottonseed does not receive due attention as in case of other oil seeds like soyabean, castor, groundnut etc. due mainly to the fact that cottonseed is not grown exclusively for production of oil. The principal product is lint, a textile fibre with worldwide demand, thereby shadowing cottonseed despite the fact that cottonseed forms 2/3rd portion of the seed cotton and lint forms only 1/3rd portion.

CONCLUSION

Cottonseed production is confronted volatility in year-on-year during the past decade. On an average, about 14 percent of cottonseed produced in India is being utilized for sowing purpose and for direct feeding to the cattle. Remaining 86 percent marketable surplus is available for processing in small and large mills. Feeding whole cottonseed is a harmful practice that prevalent in stray cases of some north Indian states. Virtually it loses valuable cottonseed by-products, such as linters, hulls, cake, extraction and precious oil. Feeding UD cake to the cattle is another age-old practice which is considered as huge national loss since the cake contains 7 percent appreciated oil. It is myth that oil content in the cottonseed raise milk yield or fat percentage in the milk but the utility has not been patronized scientifically. Therefore, these conventional practices have to be eliminated by educating the people who affianced therein. Besides, the compound cattlefeed manufacturers are bound to use large percentage of cottonseed extraction in formulation of their compound cattlefeed to save the enormous recurring national loss.

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