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Growth and Instability of Jute Production in Assam

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Abstract

Jute is one of the cheapest, strongest and most versatile of all natural fibres and is second only to cotton in amount produced and variety of uses. Assam is the largest producer of raw jute amongst the North Eastern states and is the third largest producer in the country. The state has produced 625575 bales during 2010-11. Assam registered the highest growth rate of production (2.18 per cent) during 1951-60 and highest productivity (1.86 per cent) during the year 1961-1970. The highest significant growth rate of area (10.60 per cent) was observed in Kokrajahar district while the highest production (14.36 per cent) and productivity (9.80 per cent) was observed in Goalpara district during the year 2001-2010. The most stable district for area under Jute was Kamrup (5.08 per cent), for production N.C. Hills (12.80 per cent) and for productivity Bongaigaon district (17.57 per cent), respectively.

Keywords: Jute, growth rate, instability

Introduction

Jute (*Corchorus capsularis* L. and *C. olitorius* L.) is one of the most affordable natural fibres and is second only to cotton in amount produced and variety of uses. Jute fibres are composed primarily of the components of wood fibre. Jute is often called 'The Golden Fibre" because of its colour. (World jute.com) Jute has both environmental as well as socio-economic impact. This is because it is biodegradable and does not produce harmful toxic gases when burnt and carbon dioxide assimilation rate is several times higher than that of trees. Jute cultivation also provide livelihood to millions of poor farmer families. Jute is annually renewable and the cheapest commercially available high modulus natural fibre and is utilized mostly as packaging materials. (Bhaduri *et.al.*, 2010). India is the largest producer of jute contribut-ing 61.2 per cent of the total world production. Jute is the main commercial crop of the eastern and north eastern India providing livelihood security to about 5.0 million people (Sinha *et al* , 2009). The major jute producing states in India are West Bengal, Assam, Andhra Pradesh, Bihar and Orissa. (Roy and Chattopadhyay, 2012). West Bengal ranks first in terms of area (71%) and production (81%) of jute in the country (Bera *et.al*, 2010). The yield of jute in West Bengal has been significantly higher at 2573 kg/ha, as compared to the yield of all other states viz. Assam (1890 kg/ha), Bihar (1601 kg/ha) and Andhra Pradesh (1495 kg/ha) under jute cultivation. (CACP, 2011-12). Assam is the third largest producer of jute in the country accounting for 7.87 per cent of its total area and 6.68 per cent of its total production. More importantly, Assam produces some of the best quality raw jute in the country. Jute is cultivated in all most all the districts of the state. This paper attempts to focus on the present status of jute production in Assam.

Methodology

The paper is based on secondary data on area, production and productivity of jute collected from various published and unpublished sources. Compound growth rates (CGR) of area, production and productivity was estimated using the following formula,

$Y_t = ab^t$,

Where , Y_t is area (ha), production (lakh bales) and productivity (Kg/ ha) of jute during the period t.

The total time series was divided into six periods viz. (1951-1960), (1961-1970), (1971-1980), (1981-1990),(1991-2000), (2001-2011). The coefficient of variation (CV) was used to measure the instability in area, production and productivity using the formula, Coefficient of variation,

CV = (Standard Deviation /Mean) * 100.

The newly formed three districts (Baksa, Chirang and Udalguri) are excluded for calculation of district wise growth and variation of jute area, production and productivity as they were formed very recently.

Results and Discussion

The district-wise area and production of jute for the year 2010-2011 are presented in Table 1. It showed that Dhubri has the highest percentage of area under jute (19.59%) whereas the least area was observed in Dibrugarh (0.01%) to the total area under jute in the state. However, in case of production the highest percentage was observed in Nagaon (18.54%) and the lowest was observed in Dibrugarh (0.01%) to the total production in the state. Highest production in Nagaon was due to both area and high productivity (2215 kg/ha) of jute in the district.

Table 1: District-wise area and production of Jute in Assam (2010-11)

Districts	Area (Ha)	Ranking	Percentage to total area	Production (Bales of 180 Kg)	Ranking	Percentage to total production
Cachar	52	22	0.08	522	23	0.08
Hailakandi	40	23	0.06	402	24	0.06
Karimganj	61	20	0.10	613	20	0.10
Goalpara	3010	9	4.83	48913	7	7.82
Dhubri	12195	1	19.59	93229	2	14.90
Kokrajhar	5803	4	9.32	51019	5	8.16
Bongaigaon	2153	11	3.46	24657	10	3.94
Kamrup	3410	7	5.48	52017	6	8.32
Nalbari	890	14	1.43	8420	15	1.35
Barpeta	6469	3	10.39	50524	4	8.08
Darrang	3115	8	5.00	23086	8	3.69
Sonitpur	2314	10	3.72	18194	12	2.91
Baksa	570	15	0.92	8750	14	1.40
Chirang	1416	13	2.27	13329	13	2.13
Udalgari	5138	5	8.25	62930	3	10.06
Nagaon	9273	2	14.89	115965	1	18.54
Morigaon	3656	6	5.87	28029	9	4.48

Contd.

Districts	Area (Ha)	Ranking	Percentage to total area	Production (Bales of 180 Kg)	Ranking	Percentage to total production
Jorhat	73	19	0.12	734	19	0.12
Golaghat	316	17	0.51	3175	16	0.51
Sibsagar	38	24	0.06	381	21	0.06
Lakhimpur	360	16	0.58	2365	17	0.38
Dhemaji	84	18	0.13	844	18	0.13
Dibrugarh	5	26	0.01	50	26	0.01
Tinsukia	8	25	0.01	80	25	0.01
Karbianglong	1757	12	2.82	16734	11	2.67
N.C.Hills	61	21	0.10	613	22	0.10
Assam	62267		100	625575		100

Source: Authors calculation based on data of Directorate of Agriculture, Govt. of Assam

State scenario

The compound growth rate and coefficient of variation in area, production and productivity of jute in Assam for 60 years (1951-2011) was calculated and the results are presented in Table 2. The table shows that the growth in area under jute was positive during 1951-1960 with 0.98 per cent. Thereafter, the growth trend was negative. The growth in area for the entire period (1950-2011) was found to be significantly negative (-1.32). The production of jute has shown positive growth (2.18 per cent) during 1951-1960. The trend was found to be declining over the years. The growth in production for the entire period was found to be significantly negative (0.62 per cent). The productivity of has shown positive growth during 1951-1960 with 1.17 per cent. The growth in productivity for the entire period recorded to be positive but nonsignificant. The negative growth in area might be conversion of jute growing area to some other crops. Sinha *et. al.,* (2009) reported that despite a two-fold increase in the productivity of jute since independence the area is stagnant for last two decades in India. The negative growth of production was due to negative growth of area under jute. The non significant positive growth in productivity may be due to adoption of improved variety of jute in the state.

Area under jute was found to be comparatively more stable than production and productivity of jute in the state. The most stable period for area under jute was during 1951-1960 (6.21per cent) and least during 1971-1980 (14.34 per cent). Production instability was the highest during 1971-1980 (19.97 per cent) and lowest during 1951-1960 (12.34 per cent). Productivity shows the highest instability during 1961-1970 (13.07 per cent) and least during 1991-2000 (8.89 per cent). For the whole period (2001-2011), the instability was the highest for area under jute (23.55per cent) followed by production (18.61per cent) and productivity (16.75 per cent). Area under jute has declined slowly in the state showing stable decline. There was a change in the productivity level due to adoption of improved technology that led to variation in both production and productivity of jute in Assam. The growth rate of jute area and production in India during 1998-2010 was reported to be -2.8 and -0.8 per cent in FAO corporate document repository.

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Table 2: Compound Annual Growth Rates of Area, Production and Productivity in Assam (1951-2011)

Period	Area(lakh Ha)		Production(lakh Bales)		Productivity (Kg/ha)	
	CGR (%)	CV (%)	CGR (%)	CV (%)	CGR (%)	CV (%)
1951-1960	0.98	6.21	2.18	12.34	1.17	9.35
1961-1970	-0.11	6.98	0.74	13.94	1.86	13.07
1971-1980	-3.24 **	14.34	-3.34	19.97	-0.22	10.93
1981-1990	-1.96*	10.83	-1.93	14.81	0.14	9.37
1991-2000	-2.79**	12.40	-3.37**	16.15	-0.53	8.89
2001-2011	-0.82	6.98	0.44	15.04	1.34	12.05
1951-2011	-1.32***	23.55	-0.62***	18.61	0.63	16.75

Source: Authors' calculation
*** Significant at 1 % probability level
** Significant at 5 % probability level
* Significant at 10 % probability level

District scenario

District wise compound growth rate and coefficient of variation in area, production and productivity of jute during 2010-2011 is shown in Table 3. The highest significant and positive growth of area was observed in Kokrajhar (10.60 per cent) followed by Goalpara (4.54 per cent). Most the other districts exhibited negative growth, least being in Darrang (-14.58 per cent). The highest significant and positive growth in production was observed in Goalpara (14.36 per cent) followed by Kokrajhar (11.95 per cent). The highest productivity growth was recorded in Golapara district (9.80 per cent). The highest production growth in Goalpara was due to significant positive growth in productivity which may be due to adoption of improved variety of jute.

The most stable district for area under jute was Kamrup with 5.08 per cent variation and least stable was Goalpara (52.81per cent). For production, instability was the highest in Darrang (73.57 per cent) and the lowest in N.C. Hills (12.80 per cent). The instability in productivity was the highest in Barpeta (39.17 per cent) and the least in Bongaigaon (7.57 per cent).

Table 3: District wise CGR and CV of area, production and productivity of Jute in Assam (2001-2011)

District	Area(Ha)		Production (Bales of 180 Kg)		Productivity (Kg per Ha)	
	CGR (%(	CV (%)	CGR (%(	CV (%)	CGR (%(	CV (%)
Cachar	-5.69***	17.82	-4.01**	15.08	1.80	11.25
Hailakandi	4.11**	12.50	5.80*	19.59	1.69	11.29
Karimganj	0.30	13.36	1.41	14.46	1.69	11.29
Goalpara	4.54***	52.81	14.36***	42.38	9.80***	28.38
Dhubri	-2.18	16.73	0.97	20.63	3.16	14.09
Kokrajhar	10.60***	30.12	11.19***	39.44	0.59	13.42
Bongaigoan	-7.20***	24.86	-6.30 ***	26.92	0.09	7.57
Kamrup	-0.33	5.08	7.05 *	29.67	3.02	15.43
Nalbari	-5.35***	17.32	-4.63	29.41	0.72	22.57
Barpeta	-3.84	19.89	-5.13**	39.70	5.48	39.17

Contd.

District	Area(Ha)		Production (Bales of 180 Kg)		Productivity (Kg per Ha)	
	CGR (%(	CV (%)	CGR (%(	CV (%)	CGR (%(	CV (%)
Darrang	-14.58***	52.29	-20.71***	73.57	-6.13**	31.83
Sonitpur	0.13	9.06	-2.68	21.93	-2.72	15.47
Nagaon	-3.28	32.27	0.60	14.97	0.24	9.73
Morigaon	1.09	24.01	1.39	31.08	2.92	15.75
Jorhat	-4.76**	13.51	-4.61	18.51	1.26	11.29
Golaghat	-12.24***	37.79	-11.47***	39.53	0.78	13.84
Sibsagar	1.46	15.75	2.71	17.93	1.26	11.29
Lakhimpur	-4.52***	16.84	-0.37	33.80	-0.37	22.23
Dhemaji	-0.91***	31.03	-7.83***	29.10	1.26	11.29
Dibrugarh	-11.53 **	43.77	-10.28 ***	46.92	1.25	11.29
Tinsukia	4.69	23.27	-2.06	17.74	1.26	11.29
Karbianlong	-1.58	16.41	-2.59	21.09	-0.98	15.21
N.C.Hills	-0.91	9.76	2.89	12.80	1.26	11.29
Assam	-0.82	6.98	0.44	15.04	1.34	12.05

Source: Authors' calculation
***Significant at 1 % probability level
**Significant at 5 % probability level
*Significant at 10 % probability level

Conclusion

The above analysis reveals that there is significant decline in area with insignificant increase in production and productivity. Due to poor rains in the jute growing states India's jute production is expected to decline by 12% to 90 lakh bales in the 2012-13 crop year (Commodity Online). The jute grown areas are put to some other crops such as summer rice and also to some non agricultural purposes in Assam. Further, prevalence of lower price of jute from time to time discouraged the farmers to grow jute. However, the growing concern for environment, demand for natural fibers in domestic as well as in the international market is increasing which will require a concerted effort on the part of the government as well as the private entrepreneurs and ultimately the farmers to develop jute cultivation and jute industry on scientific lines paying attention to inputs needs, better resource management and making various policies entrepreneur and farmer friendly would lead to a balanced growth of jute industry. Productivity enhancement through adoption of high yielding variety is recommended for increasing productivity. Of late the Assam Agricultural University has developed a high yielding variety of jute named *Tarun* with potential fibre yield of 36 q/ha that can be grown in Assam and some other states of India as well. (Annual Report, 2009). However, intensive cultivation of high yielding, fertilizer responsive cultivars of jute brought forth the problem of pet and diseases. (Ramasubramanian *et. al.*, 2010). Jute growers of the state should be taken for exposure visits to CRIJAF as the advanced technologies developed at CRIJAF helps to enhance net return and reduce production cost (Sinha et al., 2010). An enhanced minimum support price would encourage the jute growers to go for commercial production of the golden fibre in the state that would increase the income of the farmers. Further availability of market information, development of diversified jute products, implementation of law for using jute instead of synthetic etc are expected to enhance jute production in the state. CACP recommends that extension programmes may be strengthened through the mechanism of ATMA, KVKs and Jute Technology Mission in all major jute growing states so that the present level of adoption of technology can be considerably improved and the gap between potential and actual yield minimized.

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