UNDER PEER REVIEW

OriginalResearchArticle

StatusofLacproductionandmarketinginWestKarbiAnglongDistrictofAssam

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Abstract

WestKarbiAnglongdistrictofAssamStateishistoricallyamajorlacproducingareain the North Eastern India from where lac was used to be exported to China and Japan during17thand18th.Thefarmersintheseareashavebeendoingmakinglaccultivationsincetimeimmemorial..Amongtheseveralindigenouscommunitiesinhabiting WestKarbiAnglongdistrict,Karbis are rearing lac insects (Kerrialacca Kerr), locally called Laha, on naturallygrowing host plants in forests and on pigeon pea (Cajanuscajan) in a traditional practice. Thepresent investigation attempted to examine the presentstatus ofproduction and marketing oflac in West KarbiAnglong.Theprimary datawascollected from75 lacfarmers to findoutthe present status of production and marketing of lac. More than 35tons of lac is areexported tootherstatesfromWestKarbiAnglong districtsannually.Dueto theirtraditionalpracticetheseproducersarereceivinga lowpricefortheirproductaslowascomparedtothe marketrate.The product is marketed to local intermediaries, local traders and distant traders. Lack ofawarenessandknowledgeonvalueadditionandtheprevailingmarketprice,marketingagenciesandindustriesresultedinlowerpriceoftheproduct.Lackofscientificknowledgeon productionandprocessing oflacisthemajor problem encounteredfacedby the farmers.Lack ofprocessing unit is another major problemfor which thelacproducers received a low price fortheirproduct.

Keywords:Lac,Shellac,Hostplants,NonTimberForestProduct,Sticklac,Market,Traders

Introduction

Thelacinsects*Kerrialacca*belongstothescaleinsectfamily*Kerriidae*andconsidered as one of the non timber forest products (NFTP). The family contains nine generaand approximately 100 described species [2]. The name 'lac insect' comes from the well knownvarnish called shellac. The lac insects were known as "Laksa" (In Sanskrit which means ahundredthousand)inancientIndia..DiversemedicinalusesoflacarecitedintheAtharvaveda. Mahabharata were also refered to „"Laksagriha" or„"House of lac" [3]. Lac is aresinous secretion and when processed (shellac) is used as raw material for manufacturing ofbi-products such as paints and varnishes, glazing of fruits, coating of medicines, electronicappliances,hairlacquer,nailpolishes, jewellery,sealing waxandconfectioneries.Shellacdemand has been increasing in these industries since last few decades due its eco-friendly andnontoxic properties. The demand for lac and lac products across the world far exceeds supply.On an average, India produces about 21,000 metric tonnes of lac annually, and contributesaround 55% of the total world demand. ~~The other~~ Other key lac producing countries are Thailand,IndonesiaandChina.Accordingtomarketestimates,theworlddemandsaround40,000metric tonnesoflacannually.India,ChinaandThailand'sproductiontotalsonlyabout32,000metric tonnes[1] Thereforethereis ahugegapbetween demand and supply intheglobalmarketwhichclearlyindicatesthatthereisagoodpotentialforlaccultivation.

WestKarbiAnglong districtof AssamState is historically a major lacproducingarea in the North Eastern India from where lac was used to be exported to China and Japanduring17thand18th.[4,5]Among~~the~~severalindigenouscommunitiesinhabitingKarbiAnglong district,*Karbis*are rearing lac insects (*Kerrialacca*Kerr), locally called *Laha*, onnaturally growing host plants in forests and on pigeon pea (*Cajanuscajan*) in a traditionalpractice.Morethan35tonsoflac~~is~~areexportedtootherstatesfromWestKarbiAnglongdistricts annually.

Thefarmersinthese areas havebeenmakingdoing lac cultivation since timeimmemorial.Duetotheirtraditionalpracticetheseproducersarereceivinga lowpricefortheirproductaslowasRs350-Rs410perkgoflacascomparedtomarketrateofRs1000perkg.Theproductis marketed to local intermediaries, local traders and distant traders. Lack of awareness andknowledgeonvalueadditionandtheprevailingmarketprice,marketingagenciesandindustriesresultedin lower priceoftheproduct.Throughsecondary informationLachasbeen determinedidentified to be cultivated in Amri Block and Chinthong Block of West KarbiAnglongdistrictofAssam.

DuetotheincreasedindemandforshelllacthepresentinvestigationwascarriedoutinWestKarbiAnglongDistrictwiththemainaimtofindoutthestatusofproductionandmarketing oflacintheDistrict.

Methodology

Thesecondaryinformationonareasofproductionoflacwascollectedfromthe District Agriculture Office. From the information collected lac was found to be cultivated inlarge scale in Amri and Chinthong Bloc of West KarbiAnglong District. The primary data onlaccultivationandmarketingwascollectedfrom75lacfarmersselectedfromboththeBlocks.Thedataontheexistingproductionpracticedbythefarmersaswellascostofproduction and type of marketing for the produce was collected through personal interviewmethod usingawellpreparedquestionnaire.

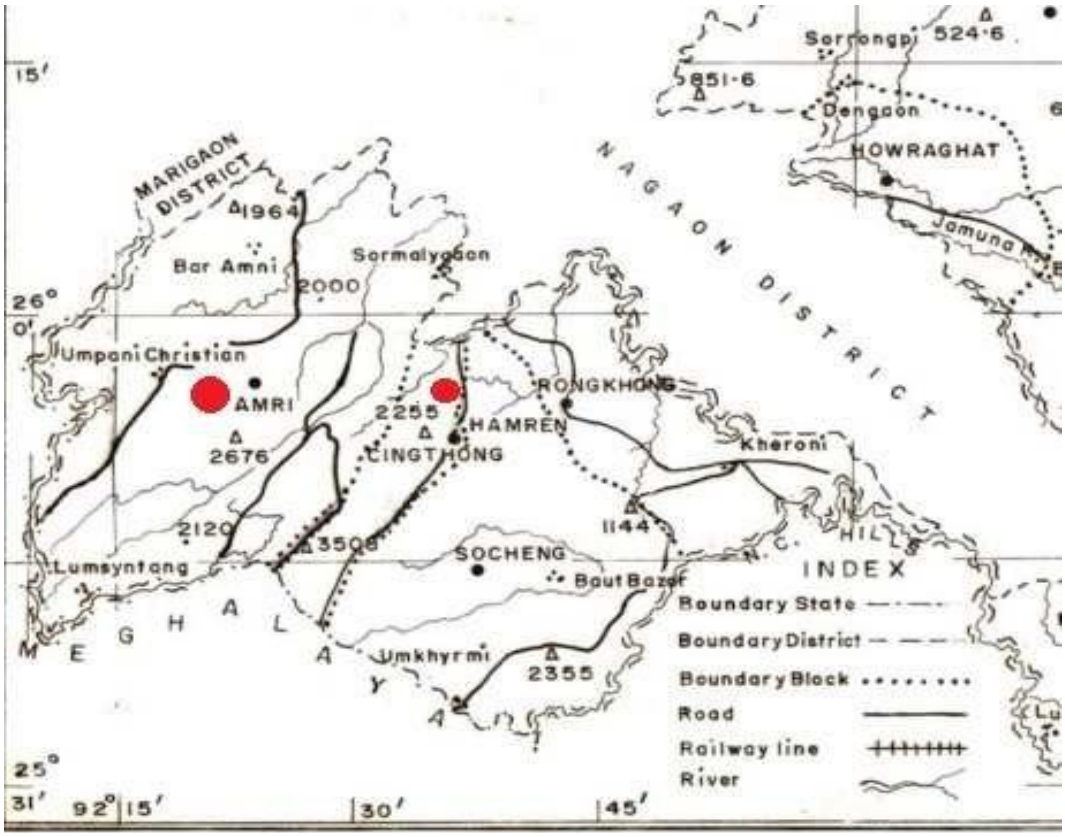

Figure1LocationmapofLacproducingarea

ResultsandDiscussions

Theareaunderlaccultivationrangesfrom0.06bighasto5bighasinChinthongBlockwhileitranges from0.13to3.5bighasinAmriBlock(Table1)..

Table1Samplehouseholdsandareaunderlacproduction

Block	Totalhousehold	SampleHousehold	AreaunderLachostplants(bighas)
Chinthong	92	30	0.06–5
Amri	135	45	0.13–3.5

Inthestudyareaitwasfoundthatthe*Karbis*rearlacinsectstwiceinayear(April-OctoberandOctober-April)onatotalof6sixdifferenttypesofhostplantswhichwereusedforlacproductionbythefarmers. Thesedifferenttypesofhostplantsalongwiththeirbeneficialusesarepresentedin Table2asfollows:

Table2.TypeofHostPlantsusedforLacproduction

Sl. No.	AssameseName	KarbiName	BotanicalName	Partsused
1	KouriThengia	Soplipli	*LeeahertaRoxb*	Tubersbeneficialinworms,boilsdeafness,indigestionandjaundice
2	Sowra	ChireTheso		Toothache,piles,diarrheoaandtubercolosis
3	Peepal	ChireKethe	*Ficusreligiosa*	Treatmentofgumbleeding,swelling ofmouthand tongue,skindiseases,rheumatismandsmallpox
4	Moj	Inghok	*Archidendronbigeminum*	Usedasfirewoodandmedicinalpurposesi
5.	Bargachh	Bodh	*Ficusbenghalensis*	Ulcer,vomiting,fever,inflammations
6	Arhar(AmriBlock)	Thekok	*CajanasSajanL*	Excellentsourceofprotein,curesinflammation,protectsskin.

Figure2.ProductionoflacinWestKarbiAnglongDistrict

CostofProductionofLac

Lac production is of 6 (six) months duration and productionis done twice a year.Harvesting operation is carriedduring the month of May/June and Oct/Nov. every year. TheaverageproductionoflacinChinthongBlockis30-55Kg/treeforsmalltreesand50-100Kg/tree for big trees while in Amri Block the average production is 100-200Kg/bigha forarharcrop and300-400Kg/bighaforbigtreeslikepeepaltree(Table3).

Table3.AverageproductionoflacinWestKarbiAnglongDistrict

Block	Typeoftrees	Production	Price(₹/Kg)
Chinthong	Bigtrees	50-100Kg/tree	300-350
	Smalltrees	30-55Kg/tree	
Amri	BigTrees(BorGach)	300-400Kg/bigha	310-350
	Arhar	100-200Kg/bigha	
About25tonsto30tonsoflacismarketedfromAmriBlockandlessthan10tonsfromChinthongBlock			

Thecostandreturnoflacproductionwasestimatedonthebasisofinputcostinvolved and the averageprevailing marketprice wastaken to calculate thereturn from lac.Thecostandreturnanalysisoflacproductionisshown~~given~~inTable4.Fromthetableitisobservedth attheaveragecostof~~culktivation~~cultivationof lacis ₹19200/bigha/year which indicatedthat production costof lacinvolved is expected to bevery minimal.Themajor cost involved isonly labourcost at the time of harvesting and post harvest operations. The average gross returns receivedfrom production oflacis ₹1,22,875 per bighaper year and thenet return is₹1,03,675 perbighaper year.Thebenefit costratiowas found tobe 6.40whichis very highindicating ahighprofitabilityoflacproduction.

Table4.CostsandReturnsfromlacproductioninWestKarbiAnglongDistrict

	ChinthongBlock			AmriBlock			
Particulars	Yield	Rate ₹/kg	GrossReturn₹	Yield (Kg)	Rate ₹/kg	GrossReturn₹	AverageTotal Gross Returns(₹)
Production(Kg/bigha) i) Arhar				150	330	49500	1,02,250
ii) Small Trees iii) BigTrees	300 400	325	97500 1,30,000	400	330	1,32,000	
SeedCost (₹/bigha)							1200
Labourcost (₹/bigha)							18000
TotalCost (₹/bigha)							19200
NetReturn (₹/bigha)							83050
Benefitcostratio							5.33:1.00

Marketing

Fromthepresent investigationitis foundthat lac producers sold their products to~~Local~~ local Traders/intermediaries and other middlemen from Nellie, Jagi Road and Guwahati whoeitherpurchaseddirectlyfromthefarmersorfromthelocalintermediaries.Theflowchartoflacmarketingispresentedin Figure3.

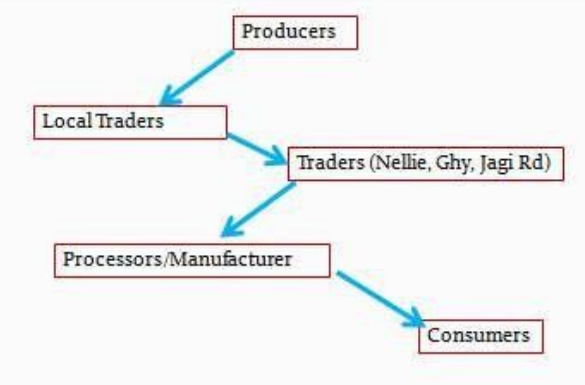

Figure3.FlowchartoflacmarketinginWestKarbiAnglongDistrictofAssam

ConstraintsinProductionandMarketingoflac

1. Lackofscientificknowledgeonproductionandprocessingoflacisthemajorproblem encountered~~faced~~by thefarmers.
2. Lackofprocessingunitisanothermajorproblemforwhichthelacproducersreceived a lowpricefortheir product.
3. Poorinfrastructuredevelopmentlikeroadsandcommunicationisanotherhindrancefacedb ythefarmersin marketingoftheir produce.

PolicyImplications

Government and Non-Government institutional agencies should take up proper andeffectivemeasuressothatthelacfarmerscanavailcapacitybuildingonscientificmethodsofrearingandprocessingoflac.AnexposurevisitforthesefarmerstoICAR-IndianInstituteofNatural Resins and Gums (ICAR-IINRG) Namkun, Ranchi may also be undertaken by theLocal Authority or any Government and Non-Government institutional agencies for linkingupthesefarmerswithmarketingagenciesoflac.Awarenessneedstoberaisedongrowingoflacin large scale in both East andWest KarbiAnglong due to high demand of shellac in multipleindustries especially paints and varnishes, pharmaceutical and electronics. Further, mechanisms arerequired to be explored that help adoption of modern practices of lac culture, provide minimumsupport price and insurance to indigenous lac farmers, develop organized marketing system andmobilizefarmerstoplanthosttreestoensureincreaseinproductivityandproductionoflacforsocio-economicupliftment of the rural people and environmental sustainability of traditional lac culture ingeneral and that of the *Karbis*in particular. Local Authority may also take up measures forinfrastructuredevelopment intheseremoteareas.

Conclusion

From the present investigation it was found that the farmers of West KarbiAnglongDistricthavebeenpracticinglaccultivationsincetheirforefathers.Laccultivationwas~~w idly~~widely

practiced by ~~the~~ farmers in Amri and Chinthong Block of West KarbiAnglong District. Morethan35tonsoflacwereexportedoutsidethedistrict.~~Thefarmers~~Farmersarestilladoptingtraditional culture for lac production and six different types of host plants were used for laccultivation.Theaveragenetreturnfromlacwasfoundtobe Rs83050perbighaandthebenefit cost ratio was very high at 5.33 per rupee investment. Lack of scientific knowledge onproduction andprocessing oflacandlackofknowledgeonthe market price werethemajorproblemsforwhichthelacfarmersreceivedverylowpricefortheirproduct.

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