भाकृअनुप - भारतीय मसाला फसल अनुसंधान संस्थान
ICAR - INDIAN INSTITUTE OF SPICES RESEARCH
(भारतीय कृषि अनुसंधान परिषद *Indian Council of Agricultural Research*)
पी. बी संख्या: *Post Bag No: 1701*, मरिकुन्नु पोस्ट *Marikunnu Post*,
कोषिक्कोड *Kozhikode-673012*, केरल, *Kerala*, भारत *India*
(ISO 9001: 2008 Certified Institute)

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F.No. 12(12)Land/76/Works- Vol.II

Dated: 26-02-2019

To

The Principal Chief Conservator of Forests,
(Forest, Land & Resources) &
Nodal Officer, F(C)Act & CAMPA
Forest Headquarters, Vazhuthacaud
Thiruvananthapuram-14

Sub: Forest and Wildlife Department – Renewal of leased forest land of 94.08 ha at ICAR-IISR Experimental Farm, Peruvannamuzhi, Kozhikode - reg.

Ref: 1) Your Letter No. FCI – 38786/2001 dated 12-07-2018
2) This office letter even no. dated 15-10-2019

Sir,

Greetings from ICAR-Indian Institute of Spices Research, Kozhikode!

With reference to the subject cited above, I am attaching herewith all the necessary documents for renewal of the lease deed in respect of 94.08 ha of forest land at ICAR-IISR Experimental Farm, Peruvannamuzhi as detailed below

1) Cost benefit analysis
2) Copy of earlier lease deed
3) Enumeration list of trees of forest species
4) Copy of DGPS Map

In view of the above, I request your good self to kindly look into the matter favourably to renew the leased 94.08 ha forest land a further period of 99 years for the benefit of farming community dedicated to the development of spices.

An early action in this regard is highly appreciated.

Thanking you.

Yours sincerely

(K Nirmal Babu)
Director

Encl: as above

पी ए बी नम्बर PABX: 0495-2731410/2731753/2731345 निदेशक का कार्यालय Director's Office: 0495-2730294 परियोजना समन्वयक Project Coordinator: 0495-2731794, एटिक ATIC: 0495 - 2730704. आई आई एस आर प्रायोगिक प्रक्षेत्र, परुवण्णामुषि IISR Experimental Farm, Peruvannamuzhi: 0496 2249371 कृषि विज्ञान केन्द्र Krishi Vigyan Kendra, परुवण्णामुषि Peruvannamuzhi: 0496-2666041, तार Grams: RESEARCH CALICUT. फैक्स Fax: 0091-495-2731187 ई मेल Email: mail@spices.res.in वेबसाईट Website: www.spices.res.in

1. Cost Benefit Analysis: Experimental Farm Peruvannamuzhi

1.1 Background

The experimental farm of ICAR Indian Institute of Spices Research at Peruvannamuzhi was established in 1976 to conserve the biodiversity of spices, develop new varieties, develop crop management techniques and technologies for post-harvest processing for spice crops grown in India. The activities of this establishment is envisaged under a no profit, no loss basis, fully funded, owned and managed by the Central Government. The results and knowledge emanating from research activities of this farm are the property of the Government of India and are made available to the farming community of the country to boost the production and productivity of spices.

1.2 Analytical framework

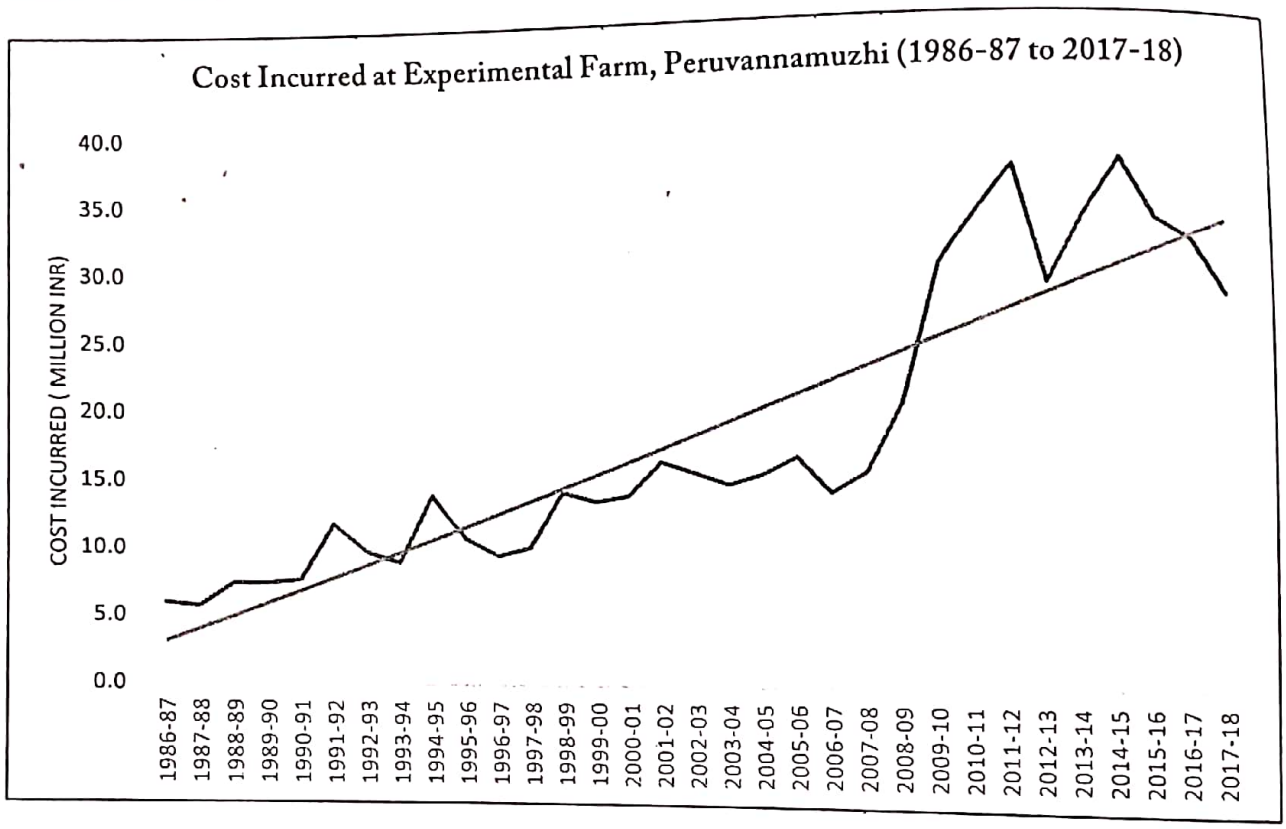
Agricultural research is considered to be one of the public goods. This means that the benefits from research is non-excludable and non-rivalrous in nature. The valuation of public goods like defence services, agricultural research etc. is often problematic in the sense that market transactions of the services are absent or rare. The beneficiaries are not charged at market rates for the use of public goods. The public sector investment in public goods like agricultural research is warranted where the market failure leads to underinvestment by private entities in such sectors. A private enterprise might not be able to make consistent profits from several niche agricultural research areas and public funded research institutions were established to address this situation. The underlying assumption is that the social benefits from the provision of the public good outweighs the social cost.

1.3 Cost structure

The experimental farm operating on the leased forest land is funded under the plan and non plan funds received by ICAR IISR for its activities. Based on the staff pattern and nature of research activities carried out, it is estimated that 20 per cent of the plan and non-plan funds are apportioned for experimental farm. The investment stream starting from financial year 1986-87, when the National Research Centre on Spices was established as an independent unit under ICAR was obtained from the annual reports of the institute. The invested amount in nominal terms were converted to real prices using World Bank GDP deflator series for India (Base year 2011-12).

The total direct investment incurred at the experimental farm from 1986-87 to 2017-18 (32 years) at 2011-12 prices was 577.6 million INR. The investment stream is depicted in figure 1. The trend of investments clearly showing a steady growth is also shown. This represents the stand alone cost of research and conservation activities at the experimental farm. Some complementary research, development and administrative expenses have been incurred at

headquarters for supporting research activities of the experimental farm. Ten per cent of the total investment cost is added towards this in the total cost incurred at the experimental farm. Thus the total cost for the maintenance and research activities conducted at the experimental farm is calculated to be 635.36 Million INR. This would indicate an average annual cost of 19.86 million INR at 2011-12 prices.



1.4 Analysis of Benefits

Contingent valuation techniques and hedonic pricing models are commonly used for valuing non-use value and use value of public goods. In this case we have used a simplified hedonic pricing model for valuing gains from the agricultural research. Along with this the positive externalities (both tangible and intangible) associated with the existence and activities of the farm is also undertaken.

1.4.1 Conservation of genetic resources and crop research

Conservation of spice germplasm and genetic resources along with research on crop productivity enhancement techniques are the focus activities carried out at the experimental farm in Peruvannamuzhi. As mentioned earlier, markets for germplasm resources do not exist. Thus, most germplasm resources are collected, catalogued, and maintained in the public sector. Because output from agriculture are generally traded in markets, an economic value can be placed on them. The value of improvements in the production process can be determined directly. Hedonic pricing methods can be used to relate the value of such improvements to the genetic resources and other activities that were used to produce them. The benefits from the conservation of genetic resources,

which form the base material for crop improvement and the benefits from crop productivity enhancement research is bundled together in case of Experimental farm Peruvannamuzhi.

Here we use the change in area, production and productivity at the national level between the biennium ending 1986-87 and 2017-18 for four major crops (black pepper, ginger, turmeric and nutmeg) whose germplasm lines are mainly conserved in the experimental farm. The germplasm repository in these crops is a national facility and inherently linked to the varietal development process in these crops across the country. Allowing an approximate period of 10 years for the germplasm collection to develop and reach a stage of economic exploitation in research programmes, the period from 1986-87 is considered as the base period for measuring crop improvement through research. Considering the fact that the germ plasm conservation activities in these crops were mainly led by the Peruvannamuzhi centre for IISR and All India Coordinated Research Project on Spices 05 -10 per cent of the yield enhancement can be attributed to the research efforts from the Experimental farm either directly or indirectly. Even at five per cent share in pure crop research effect, the average yearly incremental production during the last decade was valued at 1159 million INR.

Table: Illustration of benefit estimation from selected crops (2007-18 to 2017-18)

Crop	Yield shift BE 1985-86 to BE 2017-18	Av Yield 2007-08 to 2017-18	Av. Area 2007-08 to 2017-18	Value of Incremental production attributable to research effect 2007-08 to 17-18 (Million INR/ Yr)	5 per cent of incremental value (Million INR/Yr)
Black pepper	174	314	161582	19762.1	98.8
Ginger	3670	4631	132850	104985.2	524.9
Turmeric	2112	4772	190420	103269.0	516.3
Nutmeg	351	683	18375	3754.7	18.8
Total				231771.0	1158.9

Notes:

1. *The yield shift and average area was used to calculate the yearly value of incremental production at 2017-18 prices. Thirty per cent of the yield enhancement was conservatively attributed to pure crop research effect and the remaining yield enhancement was attributed to enhanced input use and non-crop research in allied sectors and institutional improvements. A five per cent share of total crop research effect at the national level was conservatively attributed to research activities undertaken at Experimental farm.*
2. *This valuation does not take into account the non-use value of the genetic resources. The non-use value of genetic resources is a standard practice used in contingent valuation techniques used for valuing public goods like conservation of genetic resources.*

3. *Apart from these crops the benefits arising from research and conservation of tree spices like clove, cinnamon and garcinia undertaken at the farm is not included in this valuation.*
4. *For nutmeg the base period used is 1996-97*

This simplified hedonic approach for eliciting the producer good value does not take into account complexities like share of research effort by individual scientist, apportioning yield enhancement at individual crop level etc. However, the exercise done with conservative estimates for four major crops clearly indicate the impact of the research investments and the magnitude of benefit stream.

The fundamental difficulty in measuring the value of genetic resources and germplasm conservation is that genetic resources are seldom traded in markets. But it is the only way to safeguard plant genetic lines which are constantly exploited by agriculture and other industrial activities. The obsolete crop varieties and several wild relatives of spice crops carry useful genes or alleles that, if not preserved, may no longer be available in the future. It is difficult to predict what spice crop plant characteristics or features may be sought in the future. This uncertainty is inbuilt in genetic conservation and it is the sphere of responsibility of public funded institutions to address the lack of market incentives, strong enough to induce investments in this area

1.4.2 Positive externalities

The activities and operation of experimental farm was established with the direct objective of conducting crop research in spices and conservation of genetic resources in mandate crops. Several tangible and intangible benefits have accrued due to the establishment which are indicated below.

- Employment generation for skilled, semi-skilled and unskilled labour force in this rural region
- Human resource development in the region through skilling of labour force in technical activities related to agricultural research
- Increased economic activity, commerce and transport in the region due to staff settlement, labour settlement and other economic transactions involving service requirements of the experimental farm.
- Weather monitoring of the region due to establishment of weather station at the experimental farm. The data can be used by public authorities for several purposes.

1.5 National priorities

Global spice trade has crossed USD 10 billion in the recent years. India exported spices worth more than 16000 crores during 2017-18. The value of spices as an earner of foreign exchange is well appreciated by the policy makers at the national level. The role of spices as a low volume-high value commodity with high tradability in the Indian farming system is crucial for the upliftment of the farming community.

Spice crops are expected to play a significant role in the efforts to double the farmer's income in the short run. The latent potential in spices is high with yield gaps of high magnitude between research farm yields and yield attained in farmer fields. Since more than 90 cent of the spice farmers are small and marginal farmers, the enhancement of productivity and efficiency in this sector can have implications for equitable growth and social justice. Strengthening of the spice economy has the potential to substantially strengthen the drive towards doubling of farmers income in the short run and sustained growth in farm business income in the long run.

Focused research and development of innovative crop management strategies are required to bridge the gap between yield potential and yield realization. Strengthening the research infrastructure and research outlay has yielded positive results across the world in several crops in bridging yield gaps. The steady global demand for spices, increasing demand for spices for its nutraceutical properties and pharmaceutical applications, emerging applications of spices in wellness industry and processed food industry etc augur well for spices crops. But the research efforts in these crops need to strengthen to create knowledge overheads for leveraging this soft capital for the benefit of the millions of primary producers of spices. All out efforts need to be made to intensify research and development in spices crops to consolidate and strengthen our competitive advantage in global spice trade.

1.6 Summary

The economic valuation of stream of cost and benefits from research and conservation activities in spice crops conducted at the Experimental operating on the leased land clearly indicates the significant magnitude of net gains for the society in general and the farming community in particular. The net gains could be established based on valuation of research gains in four crops without including non-use values of genetic conservation programme. The net social benefits significantly outweigh the implied social cost following stylized valuation techniques employed for the purpose.

Prepared by

Dr Lijo Thomas
Scientist, Agricultural Economics
ICAR Indian Institute of Spices Research

Endorsed by

Dr. K Nirmal Babu
Director
ICAR Indian Institute of Spices Research

निदेशक Director
भारतीय मसाला फसल अनुसंधान संस्थान
Indian Institute of Spices Research
मेरिकुन्नु पी. ओ. Marikunnu P.O.
कालिकट Calicut-673 012
केरल Kerala, भारत India

LEASE DEED

THIS LEASE DEED is executed on this the Second day of August one thousand nine hundred and seventy six BETWEEN the Governor of Kerala (hereinafter called 'the Lessor') of the one part and the Indian Council of Agricultural Research, a Society registered under the Societies Registration Act, 1860 (hereinafter called 'the Lessee' of the other part.

WHEREAS at the request of the lessee, the lessor has in G.O. (Ms) No.366/75/AD dated 8-12-1975 agreed to lease an extent of 250 acres (101.173 ha.) of forest land comprised in Pannikkottur Reserve in Pillapperuvanna Malavaram, in Kozhikode Division more particularly mentioned and described in the schedule hereunder written and plan hereto attached for a period of twenty five years for the purpose of establishing a spices Research Station in Kerala subject to the terms and conditions hereinafter contained :

(Sd/-) K.V.Ahammad Kavappa

(Sd/-) K.Gopidharan Nair

NOW THERE PRESENTS WITNESS AND IT IS HEREBY AGREED AS

In consideration of the rents and other payments herein reserved and of the covenants on the part of the lease, hereinafter contained, the lessor doth hereby domise unto the lessee by way of lease an extent of 250 acres (101.173 ha) of forest land comprised in Pannikkottur Reserve in Pillapparuvanna Malavaram in Kozhikode Division more particularly mentioned and described in the schedule hereunder written and plan hereto attached and coloured red in the plan TO HOLD THE same for a period of twenty five years from 2-8-1976 for the purpose of establishing a Spices Research station in Kerala.

2. The lessee shall pay a rent of Rs.2.50 (Rs. two and paise fifty only) per hectare per annum every year during the continuance of the lease.

3. The lessee shall pay the annual rent herein reserved on or before first December of the proceeding year to the Divisional Forest Officer, Kozhikode. The lessee shall execute the work of construction for which the land is leased out within a period of two years from the date of execution of this agreement failing which the lease will be cancelled and the area will be resumed.

4. The leasee shall have the right to construct buildings and to make other improvements which are necessary for the establishment of the Spices Research Station. On the expiration of the period for which this lease has been granted, or of the extension thereto, or sooner determination thereto as provided under these presents the lessee shall peaceable and quietly surrender to the lesser, the lease hold after removing the building or buildings put up by the leasee and all other improvements effected by the lessee, if the lessor does not ke them over at a valuation to be mutually agreed upon.

Contd. 3

5. The lessor reserves upto himself the right to revise the annual rent and refix it on the expiry of every three years from the date of execution of this agreement and the lessee shall be bound to pay the revised rate of rent as may be fixed by the lessor.

6. The lessee shall not assign or sublet his right under this deed in respect of the lease-hold or any portion thereof or otherwise deal with the lease hold without the previous consent in writing of the lessor.

7. If the rent herein reserved or any part hereof remains in arrears of if there is breach of all or any of the terms and conditions herein contained, this lease shall immediately be determined and it shall then be competent for the lessor to enter on the demised premises and evict the lessee under the provisions of the Kerala Land Conservancy Act 1957, as if These presents had not been executed.

8. The lessor shall have the right to resume the land if the lessee does not use the land for the purpose for which it was leased out within the period of two years or such further extended period as may be permitted by the lessor, to be reckoned from the date of execution of the agreement.

9. The lessee shall not without the previous consent in writing of the lessor, use or permit the use of the properties hereby demised or any portion of the same for any purpose other than that for which the same was granted. In case, anything contrary to this condition is noticed, the lease will be cancelled.

10. The lessee shall pay all rates and taxes that may be imposed or levied by any authority whatsoever in respect of the leasehold. The lessee shall allow any officer of the Forest Department not below the rank of a Forestor whenever required to enter upon the land for the purpose of verifying whether the matters provided for in the lease deed have been complied with.

11. Should the lessee violate any of the terms and conditions of this lease, or in any way act prejudicially to the interests of the lessor, the lease will be cancelled and all amounts due to the lessor by way of rent or by way of damages or otherwise shall be paid by the lessee.

12. The lessee shall be liable for all or any injury or damage done to the said land and other Government property thereon and the lessor shall have the right to realise the loss if any on account of the said damage from the lessee.

13. The lessor hereby covenants with the lessee that the lessee paying rent hereby reserved and performing and observing all the terms, conditions and covenants herein contained may Hold and enjoy the said lands during the said period without any lawful interruption by the lessor.

14. It is hereby declared that the executants hereof on behalf of the lessee are competent to and have been authorised to execute these Presents by virtue of (here enter the authority) Indian Council of Agricultural Research. Letter No.F.1-46/74-EB-II(1) dated the 9th August, 1974.

Contd...5

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In witness Whereof Shri K. Sasidharan Nair, Divisional Forest Officer, Kozhikode Division for and on behalf of the Governor of Kerala and Dr. K.V. Ahamed Bavappa, Director, Central Plantation Crops Research Institute, Kasaragod for and on behalf of the lessee Indian Council of Agricultural Research have hereunto set their hands and the seal has hereto been affixed on the day and year first above written.

Schedule

(Here enter details of the area)

21.12 hectares of forest land comprised in Panniyottur Reserve in Pillapparuvanna Malavaram in Kozhikode Division.

Sd.

Signed by Dr. K.V. Ahamed Bavappa for and on behalf of the lessee

In the presence of witnesses:

1. (sd.) Dr. M.K. Nair, Breeder, CPCRI (RS) Calicut
2. (sd.) T.V. Rajagopalan, Accts Officer, CPCRI (RS) Calicut

Sd.

Signed by Shri K. Sasidharan Nair in the presence of witnesses:

1.)sd) K.K. Vasudevan, Manager, Divisional Forest Office, Calicut-20
2. (sd.) K. Ramadasan, D/Man Divisional Forest Office, Calicut-2

True copy

Attested

Asst. Administrative Officer
National Research Centre for Spices
Marikunnu P. O., Calicut-12 (Kerala)

(ii)Species-wise local/scientific names and girth-wise enumeration of trees

	Scientific Name	Local name	31-60cm	61-90	91-120	121-150	>150
1	*Artocarpushirsutus*	Ayaniplavu	41	97	68	9	25
2	*Grewiatiliaefolia*	Chadachil	9	51	18	2	2
3	*Oleadioica*	Edala	4	15	24	0	0
4	*Cinnamomummalabatrum*	Edana	5	6	2	0	0
5	*Xyliaxylocarpa*	Erul	23	36	9	0	0
6	*Lanneacoromadelica*	Kalayam	8	17	16	2	0
7	*Euodialunu-ankenda*	Kambilly	0	8	2	1	1
8	*Aporousalindleyana*	Karivetty	39	28	4	1	0
9	*Zyzyphusxylopyrus*	Kotta	0	15	5	0	2
10	*Persia macrantha*	KulirMave	0	2	2	4	3
11	*Albizziaodoratissima*	Kunni	9	22	48	13	40
12	*Terminaliatomentosa*	Mani Maruthu	7	14	6	2	0
13	*Lagerstroemia flosreginae*	Maruth	74	215	129	14	11
14	*Vitexaltissima*	MayilEllu	8	4	2	2	0
15	*Syzygiumcumini*	Njaval	10	13	2	1	1
16	*Ficusexasperata*	Paaron	2	7	13	2	4
17	*Alstoniascholaris*	Pala	0	8	11	3	3
18	*Stereospermumchelanoides*	Pathiri	7	23	10	4	1
19	*Bombaxceiba*	Pezhu	9	10	1	0	0
20	*Careyaarborea*	Poola	15	47	60	14	10
21	*Pterospermumferuuginum*	Poovaga	9	15	8	4	2
22	*Artocarpusgomezianus*	PulliPlavu	2	13	4	0	0
23	*Dilleniapentagyna*	Punna	11	52	31	0	2
24	*Tectonagrandis*	Teak	33	93	106	55	20
25	*Terminaliabellirica*	Thanni	2	25	34	11	14
26	*Macarangapeltata*	Vatta	11	30	6	1	0
27	*Dalbergialatifolia*	Veetty	1	4	4	6	3
28	*Lagestroemiamicrocarpa*	Venthekke	1	8	10	2	1
29	*Azadirachtaindica*	Vepu	3	7	4	3	16
30	*Aporousalindleyana*	Vetty	33	23	0	0	0
31		Aalam	1	0	0	0	0
32		Kanachunda	0	0	1	0	0
33	*Miliusatomentosa*	Aanakaitha	0	0	0	1	0
34	*Mallotustetracococcus*	Charavatta	0	2	0	0	0
35	*Memecylonumbellatum*	Kaasav	0	0	1	0	0
36	*Dalbergialanceolaria*	Kanivaga	0	0	2	0	1
37	*Strychnosnuxvomica*	Kanjiram	2	2	2	1	1
38	*Elaeocarpusserratus*	Karakkamaram	0	2	0	0	0
39	*Terminaliaelliptica*	Karimaruth	0	1	2	1	0
40	*Quassiaindica*	Karinjozha	0	0	1	0	0
41		Kattukotta	0	0	0	0	1

42	*Erythrinaindica*	Kattumurikku	0	0	1	0	1
43		Kattuthali	0	0	1	0	0
44	*Sterculiafoetida*	Kavalam	0	3	0	0	0
45		Kelli	0	0	0	0	1
46		Ketta	0	1	2	0	0
47		Kilivetti	0	0	0	1	0
48	*Croton malabaricus*	Kolavu	1	0	0	1	0
49		Korakam	0	0	1	0	0
50		Kumudhu	0	2	1	1	0
51	*Grewiaserrulata*	Kurukkotty	0	1	1	0	0
52	*Adina cordifolia*	Manjakadambu	0	0	2	0	1
53	*Cassia siamea*	Manjakonna	0	2	1	0	0
54	*Adenantherapavonina*	Manjadi	0	1	1	0	0
55		Manurumi	1	5	4	0	1
56	*Hydnocarpuspentandra*	Marotty	1	0	3	1	0
57	*Culleniaexarillata*	MullanPali	0	0	1	0	0
58	*Brideliaretusa*	MulluVenga	0	3	5	1	1
59	*Glochidionzeylanicum*	NeerVetti	4	7	0	0	0
60	*Albizialebbeck*	NenmeniVaka	2	4	2	0	0
61	*Pajanelialongifolia*	Payani	0	2	0	0	0
62	*Tremaorientalis*	Pettamma	0	0	1	0	0
63	*Sapinduslaurifolius*	soap Maram	1	0	1	0	0
64	*Actinodaphnaemalabarica*	Thalli	3	1	1	2	0
65	*Pongamiapinnata*	Ung	0	3	2	0	0
66	*Delonixregia*	Vaga	0	4	3	0	5
67	*Terminaliapaniculata*	VellaMaruthu	0	1	0	0	0
68	*Vateriaindica*	Vella Pine	0	0	1	0	0
69	*Pterocarpusmarsupium*	Venga	1	1	0	0	0
70	*Lophopetalumwightianum*	Vengotta	0	1	2	3	1
71	*Litseacoriaceae*	VettiThalli	3	1	2	0	0

Divisional Forest Officer
Kozhikkode

भाकृअनुप- भारतीय मसाला फसल अनुसंधान संस्थान
ICAR-INDIAN INSTITUTE OF SPICES RESEARCH
(भारतीय कृषि अनुसंधान परिषद Indian Council of Agricultural Research)
पी. बी. संख्या: Post Bag No: 1701, मेरिकुन्नु पोस्ट Marikunnu Post,
कोषिक्कोड Kozhikode -673 012, केरल Kerala, भारत India
Email:works@spices.res.in, Ph:0495-2731410
GST No:32AAAGI0044P1ZK

F.No. 12(137)MW/2018-19/Works(29) Dated : 12-10-2018

To

M/s. Meridian Geomatics & Engineering
Parackal Square
Valayanchirangara P O
Perumbavoor
Ernakulam – 683 556

Sub: Preparation of DGPS Map pertaining to Forest Land at ICAR-IISR Experimental Farm, Peruvannamuzhi

Ref: Your quotation dated Nil

Sir,

The rate quoted for the work mentioned below have been accepted by the Director, ICAR-IISR, Kozhikode. You are therefore requested to take up the following work on contract basis subject to the terms and conditions given below.

Sr. No.	Item Description	Area (ha)	Rate/Unit (Rs.)	Amount (Rs.)
1.	Preparation of DGPS Map pertaining to Forest Land at ICAR-IISR Experimental Farm, Peruvannamuzhi, Kozhikode	94.08	2000/-	188160/-
			Total	**- 188160/-**
	Amount in words : **Rupees One Lakh Eighty Eight Thousand One Hundred Sixty Only**			

Terms and conditions:

1. The work should be undertaken as per the direction of Concerned Officer at ICAR-IISR, Kozhikode.
2. An amount of Rs. 9500/- (Rupees Nine Thousand and Five Hundred only) to be deposited towards Security Deposit (SD) within ten days from the issue of work order. Otherwise the work order will be cancelled without further notice and the contractor will be blacklisted for a period of one year for any work at this Institute. SD will be released only after satisfactory completion of the work. **The work should be completed on or before 10-11-2018. In case you fail to complete the work within the time stipulated, and to the full satisfaction of the Scientist concerned, the amount so deposited will be forfeited. In case of delay or failure to take up the work, the contractor is liable to pay the loss caused to this institute due to the delay.**
3. If the contractor fails to maintain the required rate of progress or to complete the work on or before the contract or extended date of completion, he shall without prejudice to any other right or remedy available under the law, pay compensation the amount calculated at the rates stipulated below or such smaller amount as the Competent Authority may decide (whose decision in writing shall be final and binding) on the amount of the tendered value of

the work for every completed day / week (as applicable) that the progress remains below or that the work remains incomplete.
Completion period not exceeding 3 months (stipulated) @1% per week or part there provided always that the total amount of compensation for delay to be paid under this condition shall not exceed 5% of the tendered value of work.

4. Refund claim for EMD/SD should be furnished to this office through the officers concerned in the prescribed form duly filled in with full details along with the concerned work order (original) or the receipt issued by IISR, within one month after completion of the work.
5. No farm implements will be supplied from the Institute for the work.
6. The quantum of work mentioned is only approximate and hence the Contractor should undertake additional work at the same rate, terms and conditions if entrusted to them and will have to stop the work as and when instructed by the concerned officer, ICAR-IISR Kozhikode.
7. Payment will be made by net transfer after satisfactory completion of the work and on production of your pre-receipted bill through the concerned officer, ICAR-IISR Kozhikode. You are requested to provide your bank details with IFSC code for arranging payment.
8. You will be responsible for any loss or damage caused to the property of this Institute by yourself or by your workers.
9. The Director reserves the right to recover the cost of damage caused to the property of the Institute from your bill.
10. Contactor is liable to pay statutory payments completely as applicable.
11. You are requested to intimate the commencement of the work to this office before starting the work.
12. Receipt of this work order may please be acknowledged and the work may be started immediately.

Yours faithfully

(R N Subramanian)
Asst. Administrative Officer

Copy to:

1. Dr. Saji K V, Principal Scientist. After completion of work, the bill received from the Contractor may kindly be forwarded to this office duly furnishing necessary certificates for arranging payment.
2. The Finance & Accounts Officer, IISR, Calicut.
3. Vigilance Officer, IISR, Calicut.
4. Chairman Works Committee.
5. Commitment register

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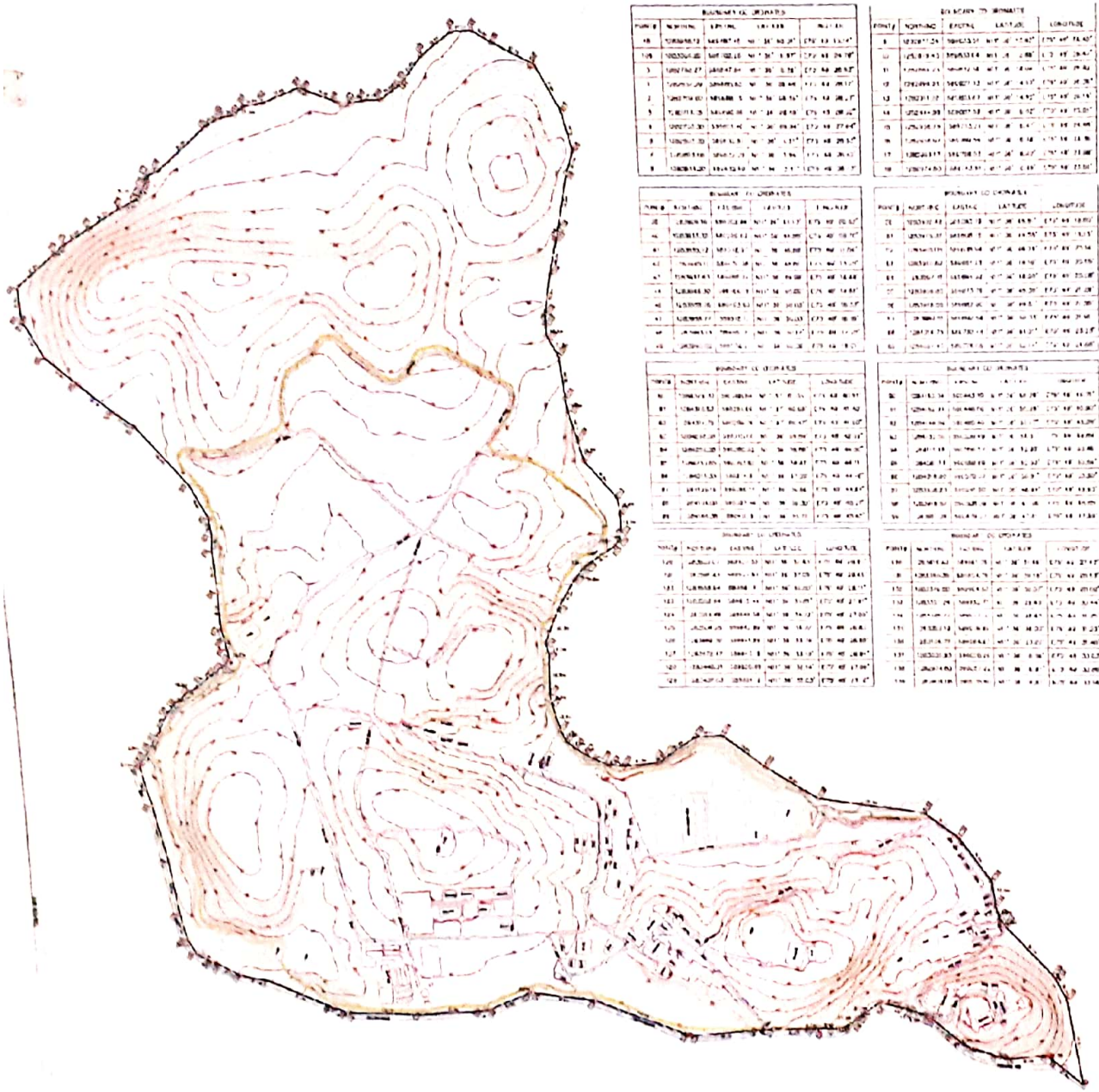
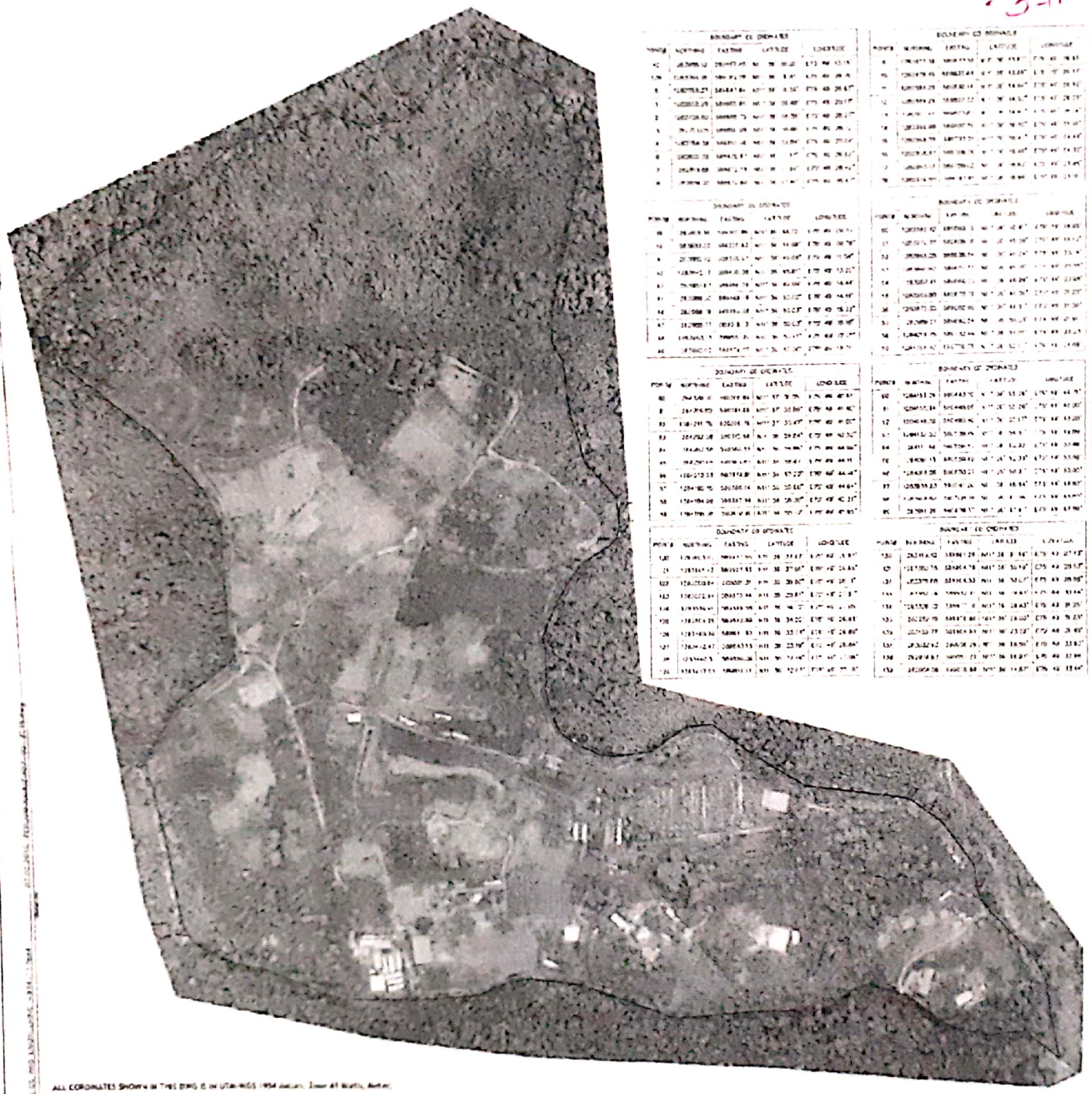


FOREST DIVISION	PERUVANNAMUZHI
DISTRICT	CALICUT
VILLAGE	PANCHAYATH
PANCHAYATH	CHAKKITTAPARA
THALUK	KOILANDI
AREA DETAILS	
HECTARE	91.302
ARE	225.603
SQ.M	913213.384

ALL COORDINATES SHOWN IN THIS PLAN IS IN UTM WITH WGS 1984, Zone 43 North, METER.

ICAR-IISR,PERUVANNAMUZHI,KOZHIKODE	AERIAL MAPPING WITH UAV-DGPS MAP OF FOREST LAND AT ICAR-IISR,PERUVANNAMUZHI,KOZHIKODE	SHEET NO: ####

MERIDIAN



ALL CORDINATES SHOWN IN THIS DWG IS IN UTM-WGS 1984 datum, Zone 43 North, meter.

FOREST DIVISION	PERUVANNAMUZHI
DISTRICT	CALICUT
VILLAGE	PANCHAYATH
PANCHAYATH	CHAKKITTAPARA
THALUK	KOILANDI
AREA DETAILS	
HECTARE	91.302
AREA	225.603
SQ.M	913020.284

AUTHENTICATED BY
ICAR-IISR,PERUVANNAMUZHI,KOZHIKODE

AERIAL MAPPING WITH UAV-DGPS MAP OF FOREST LAND AT
ICAR-IISR,PERUVANNAMUZHI,KOZHIKODE

SHEET NO: ####

2. JUSTIFICATION FOR ROADS, BUILDINGS, TANKS, ETC

The following buildings and infrastructure have been developed to facilitate research work as per permission issued by G.O.M.S. No. 232/76/Agri. dt. 3.7.76 of Agriculture (PDGI Department) of Kerala Government. The details of buildings and other infrastructure are given in tables I and II.

I. BUILDINGS/STRUCTURES

Various buildings (both permanent and semi permanent) have been constructed in the farm during the past 25 years as follows:

i) Farm office and Store

The farm office serves as the centre for administration of farm by the Farm Superintendent and provides space for the technical and supporting staff and other office paraphernalia pertaining to farm including records. Since it is a small structure it is planned to renovate it to a big building to accommodate and provide facilities to staff in the next plan.

ii) Lab-cum-ginger store

This building is necessary to serve as a field laboratory for taking up laboratory studies on various spices and several laboratory equipments such as ovens, balances, computers, microscopes etc. are kept in safe custody. A part of the building is used for storing seed material of ginger and turmeric germplasm on a permanent basis. It also provides the sitting place for Scientists/trainees arriving from head office. It is also planned to expand the lab facilities to accommodate more scientists.

iii) Single room accommodation

Four self contained single rooms are available in the farm. These are provided for temporary stay of scientific or other staff who come for field work to the farm from the headquarters and also for stay of temporary staff such as Research Fellows, etc.

iv) Store, Tool room, Two wheeler shed

A store is available to keep fertilizers, pesticides, farm produce, etc. in safe custody and is near farm office. Attached with it is tool room to keep pump repair tools and space to keep two wheelers.

v) Canteen

A Canteen building is available to serve food to the staff working in the farm, the total staff strength being 40. In addition, KVK trainees are also provided with food numbering about 30 per day.

vi & vii) Nematology and Pathology sheds

These have been provided for nematological and pathological studies on spices.

viii) Quarters

One Type-IV, two Type-III, four Type-II quarters and water supply systems have been provided for the stay of staff working in the farm because of the remote location in the midst of forests and accommodation in nearby areas are not available and also for effective supervision and protection of the farm. Additionally, one type-V, five type-IV, seven type-III and eight type-II quarters are also planned to be made in future. In addition, generator facility of 100 KVA is under implementation as a source of electric supply, which is highly irregular in the area.

ix) Pump houses

Six pump houses (one outside the farm) are available to protect the diesel as well as electric pump sets from extreme weather, theft and other interference. These pumps are needed to supply water to various plots including drinking water. In addition four pump houses are being constructed in a phased way.

x) Green houses

Three green houses are available for conservation of germplasm of pepper, tree spices, ginger and turmeric. These are covered with polynets.

xi) Semi permanent sheds

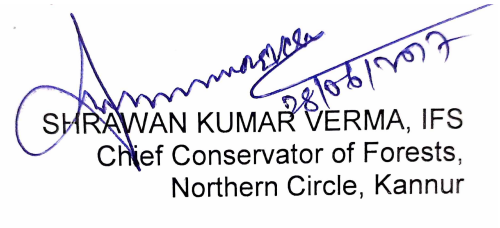
Forty-five semi permanent sheds of 24 x 6 m size covered with poly sheets are constructed for maintenance of germplasm (biodiversity), production of various planting materials for sale, for experimental studies for keeping plants protected from sunlight and rain etc.

xii, xiii & xiv) KVK buildings

Three buildings are provided to the Krishi Vigyan Kendra for its functioning i.e. one class-cum-guest room (old KVK office), one administrative building and one farmers' hostel. The aims of KVK are to impart training to farmers and officials in latest farming practices, conduct on farm testing and front line demonstrations, carry out advisory services to farmers and conduct other agricultural extension services to promote agriculture. The buildings serve as class rooms, administration facility, lab for demonstration, library for information, space for staff and the conference hall for Kisan melas, seminars, etc. The hostel is meant for accommodating farmer trainees to conduct residential training programmes and has facilities for cooking, canteen etc.

Recommendation from Conservator of Forests

The area is developed into a research station with sufficient infrastructure. This is also acting as a field information centre to local farmers. No adverse effects to forest or wildlife are caused by this station. Hence, recommended.



SHRAWAN KUMAR VERMA, IFS
Chief Conservator of Forests,
Northern Circle, Kannur

Recommendation from Divisional Forest Officer

The proposed area was leased to the Institute for 25 years prior to 1980. The lease expired in 2001. The land is under possession of a Central Government's Research Institute and is put to use for research. The area is developed into a research station with sufficient infrastructure. This is also acting as a field information centre to local farmers. No adverse effects to forest or wildlife are caused by this station. Hence, recommended.

Divisional Forest Officer
Kozhikode