

GI APPLICATION No.

192

Received Rs. 5000 in cash/
Cheque No. 119 on 17.12.09
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D.D.O.

THE GEOGRAPHICAL INDICATIONS OF GOODS
(REGISTRATION AND PROTECTION) ACT, 1999

(To be filed in triplicate along with the statement of case accompanied by five additional representation of the
Geographical Indication)

Agent Code :- 798

One Representation to be fixed within the space and five others to be send separately

Form GI-1 A

Application for the Registration of a Geographical Indication in Part a of the Register
Section 11 (1), Rule 23(2)

Geographical Indication :

BHALIA WHEAT



Application is made by *Anand Agricultural University, Anand, Gujarat* for
registration in Part A of the Register of the accompanying geographical
indication in Class 31 furnishing the following particulars :-

(A) Name of Applicant : **Anand Agricultural University**
By M.C. Varshneya, Vice Chancellor of
Anand Agricultural University,
An undertaking of Government of Gujarat

(B) Address : **Anand Agricultural University,**
At. Anand, Dist. - Anand , Gujarat, India

(C) List of association of persons/producers /organization/authority

1. Agricultural Produce and Marketing Committee, **Bavala**, Bavla, Dist. - Ahmedabad.
2. Agricultural Produce and Marketing Committee, **Dholka**, Dholka, Dist. - Ahmedabad.
3. Agricultural Produce and Marketing Committee, **Dhandhuka**, Dhandhuka, Dist. – Ahmedabad.
4. Agricultural Produce and Marketing Committee, **Barvala**, Barvala, Dist. - Ahmedabad.
5. Agricultural Produce and Marketing Committee, **Limbdi**, Limbdi, Dist. - Surendranagar
6. Agricultural Produce and Marketing Committee, **Vallabhipur**, Vallabhipur, Dist. – Bhavanagar.
7. Agricultural Produce and Marketing Committee, **Khambhat**, Khambha, Dist. - Anand
8. Agricultural Produce and Marketing Committee, **Tarapur**, Tarapur, Dist. - Anand

(D) Type of goods

: **The type of Grain wheat as ‘*BHALIA WHEAT*’**

(E) Specification

: “**Bhalia Wheat**” is produced of the **GW-1** improved variety grains which are bold, very hard and vitreous. The quality of “Bhalia Wheat” is considered to be the best. Understanding the importance of quality in every respect, great unpredicted demand has been roused by consumers/traders for Bhalia Wheat, ultimately benefiting the farmers of Bhal region by fetching higher price for this produce. Bhalia Wheat, also locally known as ***Daudkhani*** Wheat or Chasia Wheat or ***Katha*** Wheat, is especially grown under conserved soil moisture condition of Gujarat.

The detail description is given in the statement of case.

(F) Name of the Geographical Indication (and particulars)

: The name of proposed geographical indication is

'BHALIA WHEAT'

Bhalia Wheat. The Bhalia Wheat GW-1 durum variety is grown under conserved soil moisture condition in Bhal and Coastal Zone (VIIIth Agro climatic Zone) of Gujarat, which covers an area of about 0.80 to 1.00 lakh hectares with an average productivity of 650-700 kg/ha. In Gujarat wheat is grown in about 7.0 to 7.3 lakh hectares. Of the total area, 2.0 to 2.5 lakh hectares, which accounts to 26 percent is covered by durum. Durum wheat is grown mainly in Ahmedabad, Amreli, Bhavnagar, Kheda, Junagadh, Surendranagar, Rajkot, Anand and Jamnagar districts. Bhal region comprises 21°45' to 22°55' N and 71°15' to 73°15' E of four talukas viz; Dholka, Dhandhuka, Bavla and Barvala of Ahmedabad district, two talukas viz; Khambhat and Tarapur of Anand district, one taluka i.e. Matar of Kheda district, two talukas viz; Bhavnagar and vallabhipur of Bhavnagar district, Vagara and Jambusar taluka of Bharuch district and one taluka i.e. Limbdi of Surendranagar district. The durum wheat grown in this region called "Bhalia Wheat".

Unique to durum is its yellow endosperm, which gives pasta its golden hue, contains very hard bold and vitreous grain texture, high protein content high pelshanke value, medium sedimentation value, high carotene, less yellow berry and it contains maximum natural yellow pigments (due to high carotene) and low water absorption. These quality traits are preferable for semolina (suji) for use in pasta goods like macaroni, spaghetti, vermicelli, noodles, pizza etc. Consequently, this wheat produced in the above area of Bhal and Coastal Zone of Gujarat is popular not only in Gujarat but also in other parts of the country due to its special characteristics mentioned above.

The detail description is given in the statement of case.

(G) Description of Goods

Wheat is the second most important staple food crop of India. The two species viz. *Triticum aestivum* L. (Hexaploid wheat) grown in irrigated condition and *Triticum durum* Desf. (Tetraploid wheat) is grown in irrigated, rain fed as well as conserved moisture conditions.

"Bhalia wheat" grains are very hard and bold with vitreous texture and desirable qualities like, high protein content, medium sedimentation value, high carotene and less yellow berry. It contains maximum natural yellow pigments due to high carotene and low water absorption. These quality traits are preferable for semolina (suji) for use in pasta goods like macaroni, spaghetti, vermicelli, noodles, pizza etc. Besides, the Bhalia wheat is locally consumed in the form of "**Bhakhari**". It requires more pressure during milling due to hard grain. As barn is brittle and contains higher soluble sugars resulting in good quality of **Bhakhari**, it is common preparation for dinner and breakfast. **Bhakhari** prepared from Bhalia wheat is better in comparison to bread wheat. The sweet products viz; '**sweet balls**', '**Halva (shira)**' and '**churma**' also prepared from this wheat flour are more relished. An excellent deshi product – "**Thuli**" is prepared from half milled Bhalia Wheat, which is used as food for sick persons as well as for dinner purposes in this region. This "Thuli" is similar to "Daliya". A very tasty sweet product locally known as '**Jadariyu**' is prepared from the flour (powder) of green roasted grain of this wheat at dough stage with ghee and sugar.

Thus, Bhalia Wheat variety GW-1 is very popular in entire Gujarat due to superiority of its quality as well as its different products which are extremely useful. The farmer of this region receives 25 percent premium price than other durum wheat varieties and 40-50 percent higher price than bread wheat varieties.

(H) Geographical area and production and Map

: The description of area for geographical indication for **BHALIA WHEAT** is given here.

Location of Geographical indicating area

Bhalia Wheat variety GW-1 is very popular in entire Gujarat due to superiority of its quality as well as its different products which are extremely useful. The farmer of this region receives 25 percent premium price than other durum wheat varieties and 40-50 percent higher price than bread wheat varieties.

Wheat is the second most important staple food crop Of India. The two species viz. *Triticum aestivum* L.

(Hexapod wheat) grown in irrigated condition and *Triticum durum* Desf. (Tetraploid wheat) is grown in irrigated, rain fed as well as conserved moisture conditions.

Geographical area of production (Table: 1) has been shown in detail.

Table: 1 Information regarding Particular Taluka area of Districts where Bhalia Wheat cultivated in Gujarat

Ahmedabad -- Bavala, Barwala, Dhandhuka, Dholka

Anand -- Khambhat, Tarapur

Kheda -- Matar

Bhavnagar -- Bhavnagar, Vallabhipur

Surendranagar -- Limdi

Bharuch -- Jambusar, Vagra

Three Copies of Map for Determining the Geographical Area is Enclosed Separately.

The detail description is given in the statement of case.

(I) **Proof of origin**
[Historical records]

: There is evidence that durum wheat was cultivated in Bhal tract of Gujarat, before independence. Hence a scheme for genetic improvement on wheat for Bhal tract area was launched by the government of Bombay in 1944. Research work on dry wheat is in progress at the Agril. Research Station, Arnej, taluka Dholka district Ahmedabad since **1944**. Prior to the start of the Research Station the variety Gulab (Bansi 244) evolved at Niphad was recommended for cultivation. Local types Lal katha, Safed katha and Punagari wheat varieties were also grown in this area. Research work on wheat was started at Tanchha district Bharuch in **1959**. A research station for dry wheat was started at Dhandhuka district Ahmedabad in **1966**.

The Bhal & Coastal Agro climatic Zone of Gujarat region is traditionally durum wheat growing area, with strong linkage for durum wheat for its quality. The variety of durum wheat 'Arnej 206' was developed through selection from 'white katha' local durum wheat and released in 1955. As a result of research efforts, a durum wheat variety 'Arnej-28' was developed through hybridization followed pedigree method of selection from a cross A-206 x NP 200 and released in **1977**. Subsequently, the most popular durum wheat variety 'Gujarat Wheat-1' was released for commercial cultivation in 1981, developed through hybridization and back cross breeding of cross '(A-206 x Vishram) F1 x A-206' It was followed by selection. The variety of Bhalia Wheat is very popular in this region due to its better grain qualities viz; low grain mottling bold and vitreous grain, amber colour of grain, higher yield resulting in better price as well as good quality with respect to its different end use products.

The detail description of history is given in statement of case.

(J) Method of Production : The agro techniques and requirements for the cultivation standardized by the scientists.

**PACKAGE OF PRACTICES OF DURUM BHALIA
WHEAT CULTIVATED UNDER CONSERVED SOIL
MOISTURE CONDITION**

1.1 INTRODUCTION

The durum or macaroni wheat cultivation in India is considered to be very ancient. It is the best wheat for drought conditions or under restricted irrigated conditions of Punjab, M.P., Karnataka, Tamil Nadu, Gujarat, West Bengal and H.P. It is best known for its use for semolina (suji) preparation.

In Gujarat, durum wheat is grown in about 2.5 lakh hectares which accounts for 26% of total area under wheat in Gujarat. Rainfed wheat is the most important Rabi (post monsoon) crop of Bhal and Coastal Agro-climatic Zone of Gujarat. In this zone it occupies an area of about 0.80 to 1.00 lakh hectares with an average productivity of only 650-700 kg/ha. It is also known as *Daudkhani* wheat or *Chasia* wheat or *Bhalia* wheat. Farmers are encouraged to grow this crop because of its higher price, least problems of pest and diseases and straw use for livestock feed. Durum wheat is locally consumed in the form of Chapatti and *Bhakhari* as well as for sweets like "Sweet Ball". It is also categorized as a special class of wheat for processing semolina (suji), for use in pasta goods like macaroni, spaghetti, vermicelli, noodles etc.

1.2 SOILS

For rainfed crop heavy to medium black, more moisture retentive soils are desirable.

1.3 MOISTURE CONSERVATION

In Bhal and Coastal Zone, this crop is normally grown on conserved soil moisture. It is, therefore, necessary to conserve as much soil moisture as possible in sub-surface layer (*Dhada*) and soil profile. For this purpose field is provided with a bund of 45-60 cm height round the field to store rain water received during monsoon.

1.4 LAND PREPARATION

After cessation of monsoon, when the field gets proper vapsa condition it should be harrowed either by bullock drawn or tractor drawn heavy harrow. Between these two, the former is more preferable as it does not compact the soil. While harrowing the land, depth of operation should be maintained up to 7.5 cm. This operation is to be repeated 2-3 days before sowing to form a fine soil layer locally known as 'Penh' which acts as a soil mulch and helps to conserve moisture in subsurface layer wherein the seeds are to be placed. If the duration between first harrowing and sowing is prolonged one more intermediate operation is done to check evaporation of conserved moisture.

For improvement of wheat yield in marginal sodic soil (ESP around 10), Gypsum @ 1 t/ha (25% of Gypsum requirement) should be applied before harrowing once in four years and mixed in soil to depth of 10 cm.

1.5 CHOICE OF VARIETY

Through breeding efforts, a number of improved varieties have been released from time to time from local to A-206, A-28 and latest GW-1 (Table-2). Variety GW-1 has replaced earlier variety A-206, because of consumers' choice, preferring least mottling and bold grains. Hence, farmers are getting premium price for GW-1 in the market.

1.6 SEEDS AND SOWING

□ Seed rate

The recommended seed rate of durum wheat in conserved moisture condition is 60 kg per hectare.

□ Seed treatment

- 1) Seeds should be treated with Endosulfan (700 ml for 100 kg seed) or Chlorpyriphos (450 ml for 100 kg seeds) in 5 l of water for control of termite.
- 2) Seeds coated with phosphate culture, such as *Bacillus coagulans* PBA-14 or *Bacillus coagulans* PBA-13 or *Bacillus brevis* PBA-12 @ 6 packets/ha containing 10^8 CFU/g carriers to get maximum net realization and yield.

□ Method of Sowing

The seeds should be sown with heavy seed drill. Tractor drawn automatic seed drill can also be used for uniform seeding at even depth. Seeds should be drilled at 7.5 cm depth in the sub surface moist layer (Dhada).

□ Spacing

30 cm between rows is advocated.

□ Time of sowing

The best sowing time for rain fed wheat in Bhal and Coastal Zone is from last week of October to first week of November depending upon the moisture content in the soil and prevailing temperatures of the atmosphere.

1.7 MANURES AND FERTILIZERS

Soils of this zone are low in organic carbon and available nitrogen and low to medium in available phosphorus. So, addition of manures and fertilizers to requisite quantity is needed to harvest good crop yield.

□ **Manures**

Application of FYM @ 5 t/ha before onset of monsoon and thoroughly mixed with the soil helps to maintain soil fertility and to increase the yield.

□ **Fertilizers**

For obtaining higher yield, the crop should be fertilized with 20 kg nitrogen per hectare at the time of sowing. Phosphorous @ 15 kg/ha should be applied as basal in deficient soils. Results on experiments conducted at Dhandhuka indicated that wheat GW-1 responds up to 20 kg P₂O₅/ha if there is sufficient moisture in the sub surface layer.

1.8 INTER CROPPING

Intercropping of wheat + safflower in 3 : 1 row proportion at 30 cm spacing is recommended considering higher wheat equivalent yield, gross monetary returns and highest LER .

1.9 WEEDING AND INTERCULTURING

Weeding

Lano (*Suaeda maritima* (L.) Dum), Nali / Hirankhuri (*Convolvulus arvensis*), Camel thorn - Alhagi pseudalhagi (M.Bieb.) Desv.) and Hathizad/Okharad (*Chrozophora rottleri* (Geis Juss) are major weeds found in the field of wheat, among which Lano and Hathizad can be effectively controlled by hand weeding. For this

purpose one to two hand weedings are required. For the control of Nali, 2,4-D @ 1.0 to 1.25 kg/ha can be used as post emergence application at tillering, milking and after harvest of the crop while for camel thorn, glyphosate @ 0.4% may be used after harvest of wheat crop.

Inter culturing

The farmers of Bhal and Coastal Zone growing wheat (GW-1) are advised to follow interculturing operations maximum six times commencing from just before initiation of cracking (45 DAS) at an interval of 8-10 days. This helps to increase the yield by checking the moisture evaporation losses due to soil mulch development and keeping the crop field weed free.

Plant Protection

Pests

Surface grass hopper

(Aiolopus thalassinus tamulus)

Grass hopper known as horned grass hopper causes a severe damage initially at seedlings stage. Once the crop is destroyed, resowing is required. The pest is confined to wheat growing areas of Dhandhuka taluka. The pest appears as swarms and attack on newly emerged seedlings by cutting the plants at ground level. The damage is done within short time of its field entry and remains there feeding on debris/grass and moving slowly to another field for attack. In the hot spots, the farmers are advised to undertake preventive measures by dusting Methyl parathion 2% dust @ 25 kg/ha on the bunds surrounding wheat crop, so that the pest which survives on *kharif* sorghum and then migrates to wheat seedlings may come in contact with insecticide and get killed before damaging wheat seedlings.

It is also advised to cut *kharif* sorghum in time so that the adults may die due to starvation in absence of food during the period from harvest of *kharif* sorghum and sowing of wheat.

In case of infestation of grass hopper in the initial growth stage (seedling stage) of crop, dusting of Methyathion 2% or Fenvalerate 0.4 @ 25-30 kg/ha is advised for effective control .

1.10 Harvesting

Harvesting is generally performed by hand sickles when crop attains maturity. Threshing is very easy and can be done by mechanical thresher, bullock trampling or even by running a tractor. In case of labor shortage at peak harvest period, use of combined harvester could be economical.

1.11 Yield

The yield of rain fed wheat is about 8 to 10 quintals per hectare.

1.12 Storage

The grains should be thoroughly dried before storage. The storage life of the grain is closely related to its moisture content. Grains with less than 10 percent moisture can be stored well. The storage pits, bins or godowns should be moisture-proof and should be fumigated to keep down the stored-grain pests including rats. Zinc phosphide is very effective against rats.

Wheat grain (GW-1) after proper drying under sunlight coated with castor oil @ 500 ml/100 kg seed or mixed with dried neem leaves @ 2 kg/100 kg seeds can be stored safely in galvanized bins against lesser grain borer under Bhal condition.

The detail description of cultivation practices or agro techniques for WHEAT production is given in statement of case.

(K) **Uniqueness**

: The best quality grain should possess high protein and medium strong gluten, low lipoxidase an enzyme which destroys the pigment during processing. Bhalia Wheat - Durum is the hardest among wheat spp., its density, combined with its high protein content and gluten strength, which make durum the wheat of choice for producing premium pasta products. Pasta made from durum is firm with consistent cooking quality. Bhalia Wheat - Durum kernels are amber-colored and larger than those of other wheat classes. Also unique to Bhalia wheat is its yellow endosperm, which gives pasta its golden hue. Such wheat gives maximum yield of semolina of uniform particle size free from specks and grit. The semolina should possess readily and give a product that is strong, clear and bright yellow in colour and which when cooked will swell to retain its shape and have firm site without becoming soft and mashy. The Bhalia wheat possesses all these characteristics. When durum wheat is milled, the endosperm is ground in to a granular product called semolina. A mixture of water and semolina forms stiff dough. Pasta dough is then forced through dies, or metal discs with holes, to create hundreds of different shapes.

"**Bhalia wheat**" contains very hard bold and vitreous grain texture, high protein content, high pelshanke value, medium sedimentation value, high carotene, less yellow berry and it contains maximum natural yellow pigments (due to high carotene) and low water absorption (Table 3), which are preferable for semolina (suji),pasta goods like macaroni, spaghetti, vermicelli, noodles, pizza etc.

The detail description is given in statement of case.

(L) **Inspection Body** : It is inspected and certified by Department of Agriculture and now *Department of Horticulture, Gujarat State* from many years.

The research work on Bhal Wheat is also initiated through inspection by Department of Horticulture, **Anand Agricultural University, Anand.** for biochemical evaluation from different area of Gujarat region. The technical programme for DNA mapping of BHAL WHEAT was approved and work is also in progress. **The detail description is given in statement of case.**

(M) **Other information and list of attachments**

: Table: 1

Information regarding area of Bhalia wheat cultivated under conserved soil moisture condition (2007-08)

Table: 2

Varietal characteristics of different varieties of *T. durum* released for cultivation under Rainfed / Conserved soil moisture condition in Gujarat.

Table :3

Quality parameters of different wheat varieties.

Along with the Statement of Case in Class : 31 (Horticultural Produce) in respect of *BHALIA WHEAT* Goods In the name of Anand Agricultural University, By _ M.C. Varshneya, Vice Chancellor of Anand Agricultural University, An undertaking of Government of Gujarat whose address is : At. - Anand Agricultural University, At. Anand, Dist. - Anand, Gujarat, India, Nationality – Indian, who claims to represent the interest of the producers of the goods to which the geographical indication relates and which is in continuous use since 1944 in respect of the said goods.

2. The Application shall include such other particulars called for in rule – 32 (1) in the Statement of Case.
3. All communication relating to this Application may be sent to the following address in India.

Umesh Brahmbhatt

Brahmbhatt & Associates

Advocates

5, Bhagyoday Flats, Sattar Taluka Society,

B/h. C.U. Shah College, Navjivan,

Ahmedabad – 380 014, Gujarat, India.

Agent Code – 798

Dt. 15 /12/2009



For, ANAND AGRICULTURAL UNIVERSITY

Umesh Brahmbhatt

For Brahmbhatt & Associates

Agent Code - 798

Table: 1

Information regarding area of Bhalia wheat cultivated under conserved soil moisture condition (2007-08)

District	Taluka and cultivated area (ha)				Total (ha)
Ahmedabad	Bavala 8500	Barwala 5355	Dhandhuka 25900	Dholka 1950	59255
Anand	Khambhat 4000	Tarapur 674	—	—	4674
Bhavnagar	Shihor 50	Vallabhipur 225	—	—	275
Surendranagar	Limdi 4450	—	—	—	4450
Bharuch	Jambusar 1000	Vagra 2935	—	—	3935
Total					72589

Table: 2**Varietal characteristics of different varieties of *T. durum* released for cultivation under Rainfed / Conserved soil moisture condition in Gujarat.**

Sr. No.	Variety	A-206	A -28	GW-1
	Characters			
1	Pedigree	Selection from local white katha durum wheat	A-206 x NP-200 Pedigree method of selection	(A-206 x Vishram)F ₁ x A-206 Pedigree method of selection
2	Year of release	1955	1977	1981
3	Plant height (cm)	70 (medium)	61 (medium)	72 (medium)
4	No of tillers	4	5 to 6	4 to 5
5	Plant and leaf colour	Waxy stem, dark green and hairy leaf	Waxy stem, green & hairy leaf	Waxy stem, dark green and hairy leaf
6	Spike colour	Light brown colour of spikelets and tight spikelets in spike	Brown colour of spikelets and tight spikelets of spike	White colour of spikelets and tight spikelets in spike
7	Length of spike	6.5 to 7.0 cm	7.0 cm	7.5 to 8.0 cm
8	Days to maturity	90-110	110-115	115-120
9	Seed characters	Colour-amber, large size and 10% spottedness	Colour-amber, large size & 70% spottedness	Colour-amber, very large size i.e. higher test weight and negligible spottedness
10.	1000 grain weight (g)	40-44	42-45	52-56
11.	Average yield (kg/ha)	1000-1200	1100-1200	1200-1400

Table 3: Quality parameters of different wheat varieties.

Sr. No.	Variety	Protein content	Hectoliter wt (kg)	Sedimentation value (ml)	1000 grain wt (g)	Grain Appearance (0-10)	Soluble sugar (%)	Wet Gluten content (%)	Starch content (%)	Carotene (mg/100gm)	Yellow berry (%)
1.	A-206 @	11.9	77.4	40	41.3-43.2	7.1	2.08	27.6	63.9	0.184	05
2.	GW-1 @	12.8	76.3	43	52.2-53.8	7.2	1.97	28.1	62.8	0.176	03
3.	GW 1139 **	15.3	79.8	53	54.0-62.0	7.0	1.49	31	61.9	0.200	0.5
4.	GW 496*	13.4	84.2	42.0	45.0-49.0	7.3	1.98	29.1	63.2	0.168	-
5.	GW 322*	13.2	79.8	44.0	41.0-47.0	7.2	2.11	28.7	63.6	0.174	-
6.	GW 366*	13.5	82.4	44.5	52.0-55.0	-	-	34.5	63.7	-	-

@ Durum Wheat varieties tested in LST (RF) & SST-II (RF) during Rabi 2007-08.

* Bread wheat varieties tested in LST (TS) & SST (TS) during Rabi 2007-08.

** Evaluation of bread wheat varieties & durum wheat varieties in LST (D) & SST.(TS) during Rabi 2007-08.



A-206



GW-1



ENCLOSURE-3
DATA SHEET OF CLIENT

Name of Association/organization : **Anand Agricultural University**
By M.C. Varshneya, Vice Chancellor of
Anand Agricultural University,
An undertaking of Government of Gujarat

Address and Nationality : **Anand Agricultural University,**
At. Anand, Dist. - Anand , Gujarat, India
Indian

Name and Addresses of the members of association/organization : **Given in GI-1 – A Form and also in Statement of Case**

GI Registration of (Name of the GI) : **"Bhal Wheat"**

Period of use : **Since 1944**

Details of the Products/Goods or Services : **Grain Product Wheat**

Complete details of your goods and the description of goods, which indicates the geographical indication and its unique features : ***"Bhalia Wheat" is produced of the GW-1 improved variety grains which are bold, very hard and vitreous. The quality of "Bhalia Wheat" is considered to be the best. Understanding the importance of quality in every respect, great unpredicted demand has been roused by consumers/traders for Bhalia Wheat, ultimately benefiting the farmers of Bhal region by fetching higher price for this produce. Bhalia Wheat, also locally known as Daudkhani Wheat or Chasia Wheat or Katha Wheat, is especially grown under conserved soil moisture condition of Gujarat.***

Proof of Origin (Its historical records) : **Attached herewith**

Method of production (Procurement of raw materials) : **Use standard Agro techniques given in format.**

Name of Contact Person : **M.C. Varshneya, Vice Chancellor of**
Anand Agricultural University,
Signature of Contact person