

# Food Security through Rice bean Research in India and Nepal (FOSRIN)



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**Educational Qualifications :**

<b>Degree</b>	<b>Year of passing</b>	<b>University/board</b>	<b>Subject</b>
Ph.D.	1998	PAU, Ludhiana	Agronomy
M. Sc.	1988	HPKV Palampur	Agronomy
B.Sc. (Agri.)	1986	HPKV Palampur	Agronomy

**Professional experiences : 16 years**

<b>Position held</b>	<b>Date of joining</b>	<b>Place of Duty</b>	<b>Employer</b>
Assistant Scientist ( Agrostology)	02-12-1989	Research Sub Station , Lari ( Lahaul & Spiti)	HP KV. Palampur
Assistant Scientist ( Agrostology)	14-05-1993	Deptt. of Plant Breeding Palampur	HP KV Palampur
Scientist Agronomy	02-02-1998 till date	Fodder Production and Grassland Management Centre, Palampur	CSK HPKV. Palampur

## Association in Research Projects

Project	Funding agency	Mandate	Status
All India Coordinated Research Project on Forage Crops	ICAR	<ul style="list-style-type: none"> <li>• Crop improvement and Management studies in grasses and legumes</li> </ul>	Continue
Pasture Improvement & Legume Introduction Soil Plant –Animal Relationship	NATP (ICAR)	<ul style="list-style-type: none"> <li>• Standardization of agro-techniques for the management of grasses and legumes with a view to improve the production, soil &amp; animal health</li> </ul>	1999-2004
Bio-chemical characterization of rice bean germplasm and improvement in its nutritional quality and yield with agronomic appraisal	ICAR	<ul style="list-style-type: none"> <li>•Collection of rice bean germplasm</li> <li>•Evaluation of more than 75 lines of rice bean collected from Himachal, Assam, Uttranchal, Orissa for desirable traits viz. Production, Quality and Disease Resistance.</li> <li>•Studies on the effect of agronomic management in particular of biofertilizers and organics on productivity and quality of elite strains.</li> </ul>	Continue up to 2006
Ecological and Management Studies in certain Dry temperate and Alpine pastures of Lahaul * Spiti (HP)	Dept. of Biotech (Govt. of India)	<ul style="list-style-type: none"> <li>•Improvement of temperate and alpine pastures</li> <li>•Studies on the succession of species</li> <li>•Studies on productivity, quality and soil health on long term basis</li> </ul>	Continue up to 2006
Food Security through Rice bean Research in India and Nepal (FOSRIN)	European Commission Brussels, Belgium		

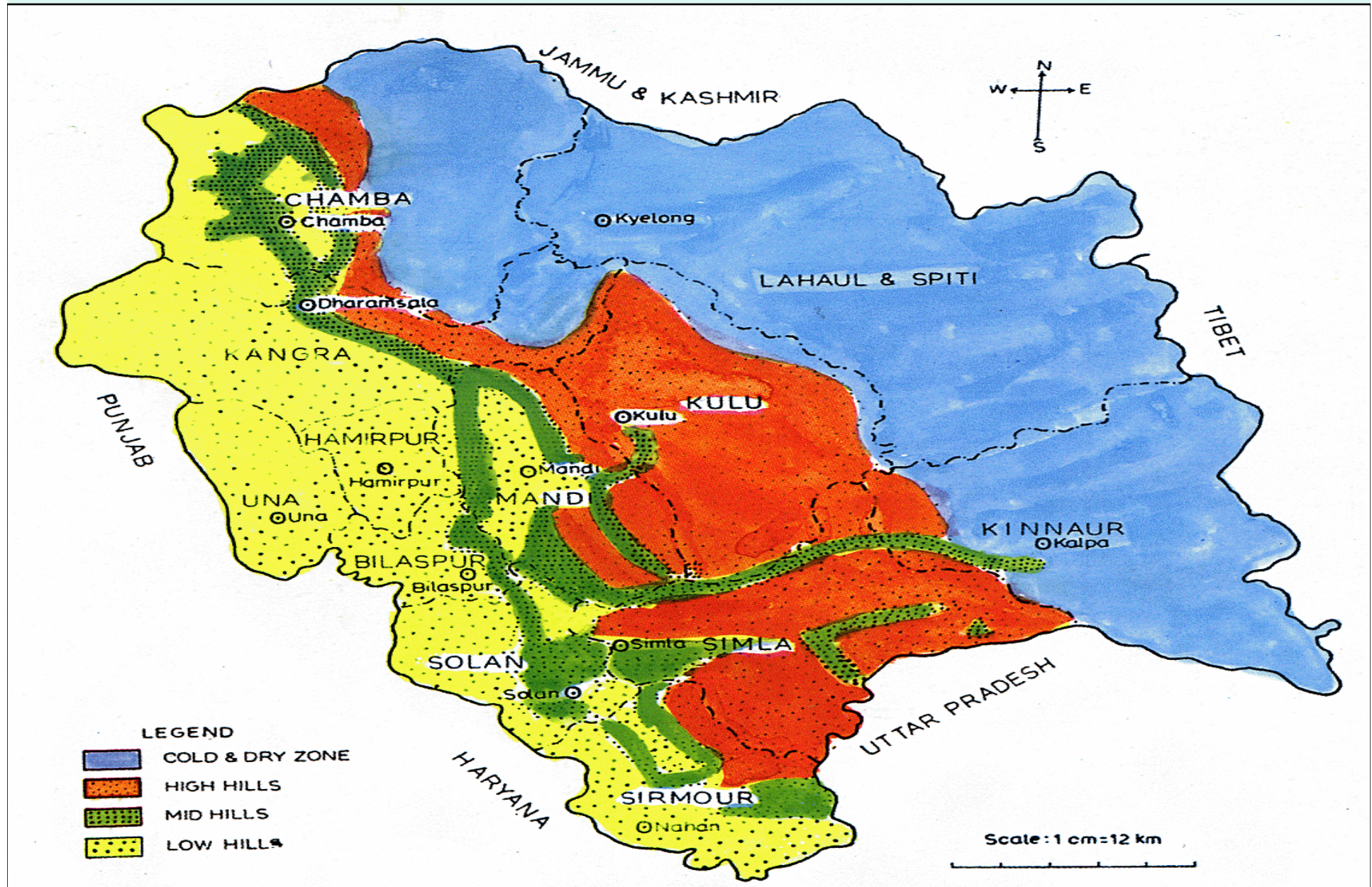
## **Publications**

- Research papers : 28
- Book Chapters : 3
- Symposia/ Conferences : 28
- Popular articles : 18

## **Teaching**

- Teaching of courses of under graduate (B.Sc. Agriculture) and post-graduate classes in crop production since 1992

# Agro-Climatic Zones of Himachal Pradesh (India)



# Features of Agro-Climatic Zones of HP

Zones	Potential	% Geog. Area	% Cropped Area
I) <b>Low Hill Zone*</b> (350-650 m.a.s.l.) Sub Tropical	Foodgrains, Oilseeds, <b>Pulses</b> , Seasonal Vegetables, Sugarcane etc.	16.24	38.00
(ii) <b>Mid Hill Zone*</b> (651-1,800 m.a.s.l.) Sub Temperate	Foodgrains, <b>Pulses</b> , Ginger, Tea, Potato etc.	21.25	41.04
(iii) <b>High Hill Zone*</b> (1,801-2,200 m.a.s.l.) Humid Temperate	Wheat, Barley, Millets, Off-Season Vegetables, Seed Potato, Temperate Vegetables Seeds, <b>Pulses</b> etc.	23.01	18.39
(iv) Cold Dry Zone (Above 2,200 m.a.s.l.) Dry Temperate	Barley, Pseudo-Cereals, Temperate Vegetable Seeds, seed Potato, Off-Season Vegetables, <b>Peas</b> ,	39.34	2.60

**\*Project activities will mainly be taken in these zones in HP state**

# **Socioeconomic conditions of the farmers in the state**

- **Marginal and Small farmers about 80%**
- **Per capita income is very low of rural people**
- **Livestock rearing is an integral part of rural economy ( 36 to 50% of family income comes from livestock)**

# CSK Himachal Pradesh Krishi Vishvavidyalaya Palampur (HP) India

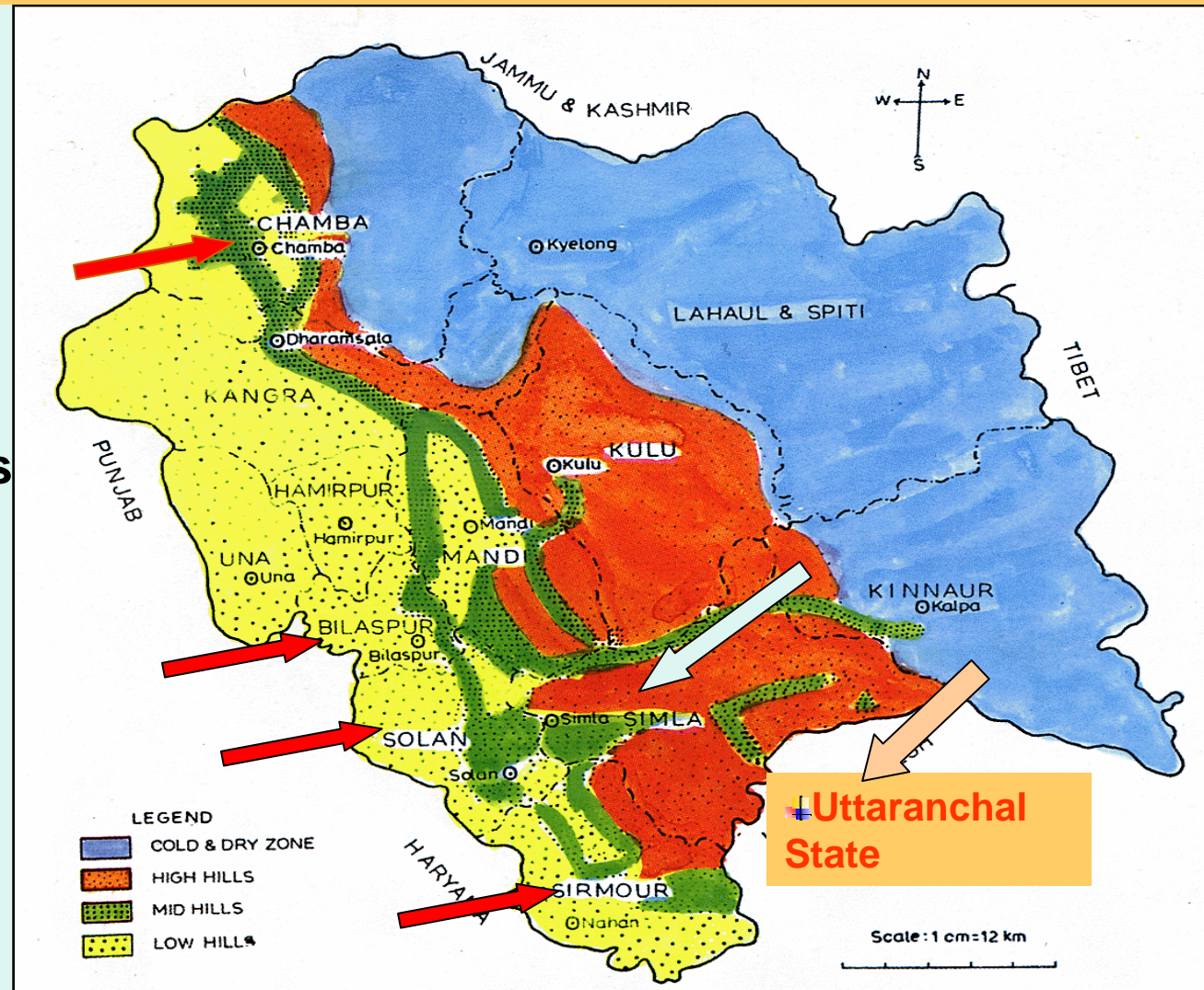


- Situated in the laps of Himalaya at  $32^{\circ} 6'$  N latitude and  $76^{\circ} 3'$  longitude
- 1290.8 m amsl
- Average annual rainfall=2650mm ( 70% of which is received during monsoon months)

# RICE BEAN IN NW Himalaya

Some potential niches of Rice bean in Himachal Pradesh (Identified in preliminary studies)

- ➡ Bilaspur
- ➡ Shimla
- ➡ Solan
- ➡ Sirmaur
- ➡ Chamba Districts



# Preliminary evaluation studies in rice bean collections at CSK HP Krishi Vishvavidyalay Palampur, HP- India



# Variability in germplasm



## Damage caused by anthracnose disease



# Issues need to be addressed on priority

- Farmers Preference (Grain vs fodder; cooking; taste)  
High yield- grain as well as fodder
- Early maturing
- Resistance to diseases
- Marketing (Channel)
- Value addition

# What is to be done in “FOSRIN”

Different WP will be executed as per the time schedule mentioned in indicative timetable of activities at section 7.3 of the present document

## **WP1- Supply chain, consumer demand and marketing**

- **Survey and collection of data from different societal groups- farmers, agents and in the market**
  - Production level and its utilization (used in the production domain ) and supply chain ( to market How?)
- **Acceptability of farmers-**
  - Preference with respect to pluse vs fodder
  - Traits requirement
- **Why not cultivated by majority of farmers**
- **Collection of samples of the legumes (pluses)**
- **Analysis for quality parameters**
- **Status of pluses consumption and other dietary behaviour in general and in particular of the selected families**
- **Data collection from available statistics**
- **Share of women in agricultural activities**
- **Compilation of the data**

**(ECONOMIST; NUTRIOTINIST; BIOCHEMIST)**

## **WP2- Assessment of genetic diversity and indigenous knowledge**

- ✓ **Review of literature for distribution of rice bean in the country**
- ✓ **Niches of rice bean cultivation will be identified in Himachal and Uttaranchal states of India**
- ✓ **Documentation of local knowledge regarding rice bean cultivation (Cultivation and utilization)**
- ✓ **Germplasm collection with complete passport data from different niches/areas**
- ✓ **Maintenance of germplasm**

**Data analysis and Reporting**

**(Plant Breeder;Economist)**

## WP4- Germplasm characterization and adaptation

- Testing of available germplasm (phenotypic diversity analysis)
- Characterization of Germplasm for different desirable traits:
  - Grain; fodder yields; morphology w.r.t. growing habit; disease resistance (*Anthraxnose*); consumer acceptability w.r.t nutritional value, cooking quality and taste
- Agronomic evaluation:
  - Testing of promising lines in maize based mixed and inter cropping systems at research farm and in farmers fields in different areas for their suitability and adaptability
  - Nutrient management with special emphasis on *Rhizobium* and micro and macro nutrients
- Data analysis and comparison with WP1 status

(Plant Breeder, Agronomist, Pathologist; Biochemist; Nutriologist)

# WP5- Nutrition and health

- **Nutrient contents** (nutritional and antinutritional components)
  - of promising identified rice bean cultivars/lines
  - under different agronomic managements
- **Dietary behavior of the selected families**
  - Consumption of pluses
  - Effect on health after execution of project
- **Value addition**
- **Benefit cost analysis**
- ❑ **Data analysis and Reporting** (Comparison with WP1)  
(Biochemist, Nutritionist, Economist)

• **Strategies for Supply chain of the produce in the market (WP1)**



## **WP6:**

**-Coordination with participating institutions and other organizations as and when required- on technical and financial issues**

**-Timely reporting of technical matters and financial reports**

# WP7: Dissemination

- On farm demonstrations of improved package
- Demonstrations on farmers fields
- Literature in local language, Press and Media
- Audiovisual aids
- Technical documentation of the project brochures
- Monograph on Rice bean
- Extension Network:
  - ☑ Farmer's participation (Field Days, Short trainings)
  - ☑ through Women Association's\* (*Mahila Mandals- in each Panchayat* (\* **Production to Utilisation**),
  - ☑ KVK,s of Agriculture University located in each district
  - ☑ Agriculture Extension Officers of State Agriculture Department
- **Compilation of the project report**

# WP8- Review and assessment

- **All the activities viz.**

- ✓ Basic Survey,(WP1)
- ✓ Germplasm diversity and collection,(WP2)
- ✓ Evaluation and testing in production systems (WP4)
- ✓ Nutrition and health (WP1 vs. WP5)
- ✓ Dissemination/ Extension of project outcome (WP7)
- ✓ Strong linkage with participating institutions, regional coordinator and Project coordinator(WP6 &WP8)
- ✓ Data analysis and reporting

**Will be carried out as per the time schedule**

# Association of scientific manpower

- ▶ Dr. J. C. Bhandari, Senior Plant Breeder
- ▶ Dr. R. K. Chahota, Plant Breeder
- ▶ Dr. D. K. Banyal, Plant Pathologist
- ▶ Dr. Harbans Lal, Economist
- ▶ Dr. Rajan Katoch, Biochemist
- ▶ Nutritionist

## **Requirement for better Project efficiency**

- **Timely release of finance**
- **Some advanced trainings related to project objectives**
- **Better interdisciplinary and inter Institutional linkage**

# Thanks



Suggestions Please