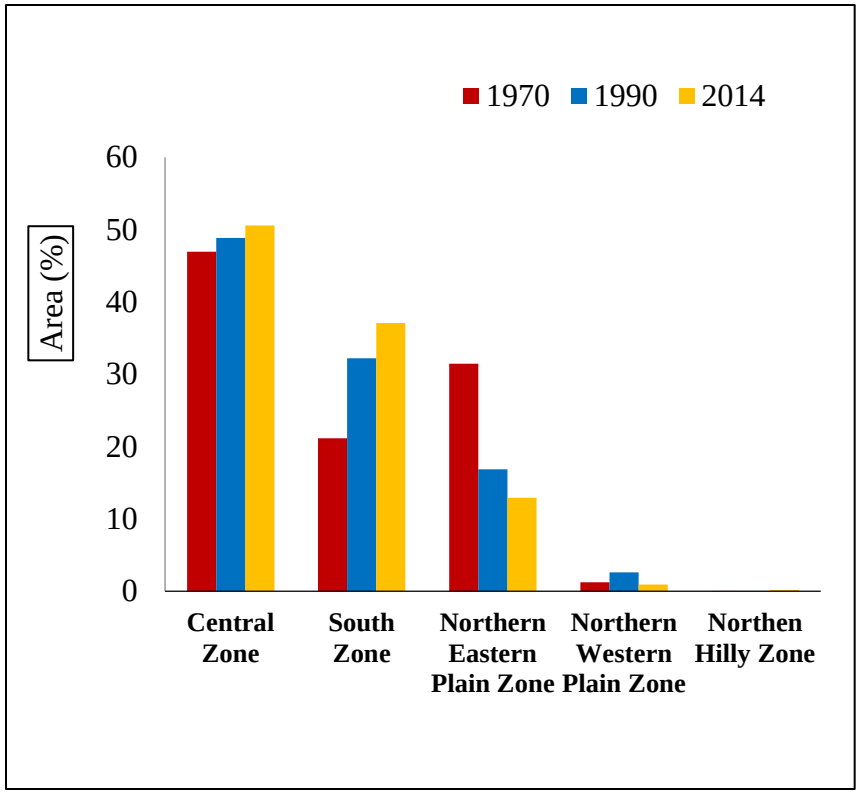
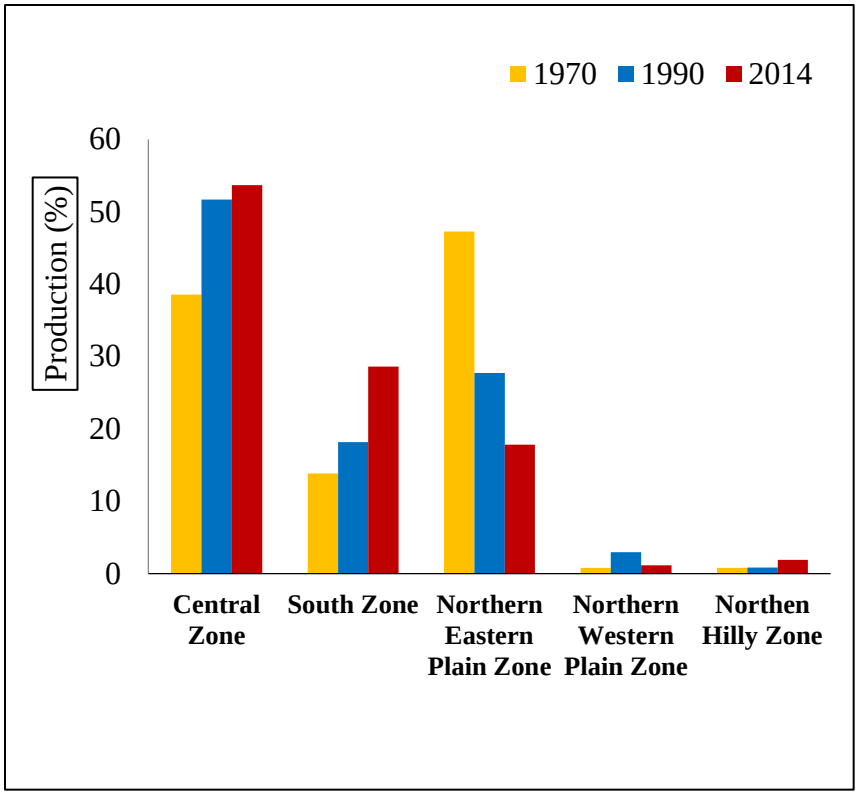
Status of progress: Outcome V (Socio-economic component)

5.1. Mapping of Area, Production and Productivity trends of pigeon pea in India: State wise and District wise analysis

5.2. Assessment of Pigeon Pea Production Practices, Varietal Diversity, Constraints and Farmers' & Market Preferences for Varietal traits in selected regions of India

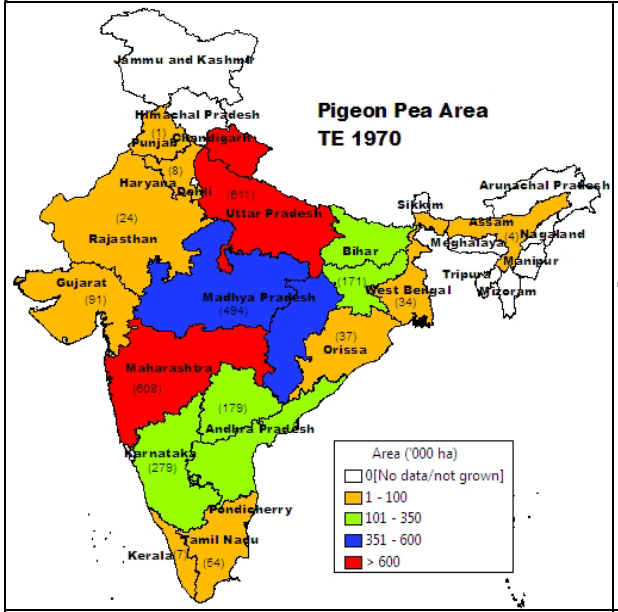
Agro-climatic zone wise shift in share of Pigeon Pea Area and Production

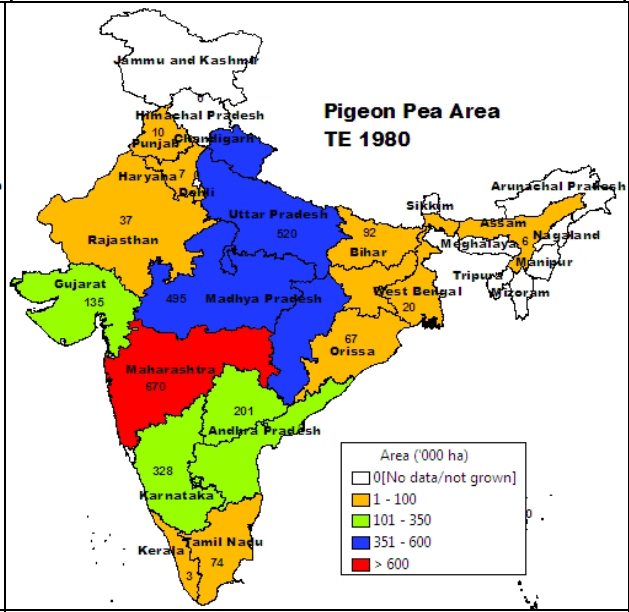


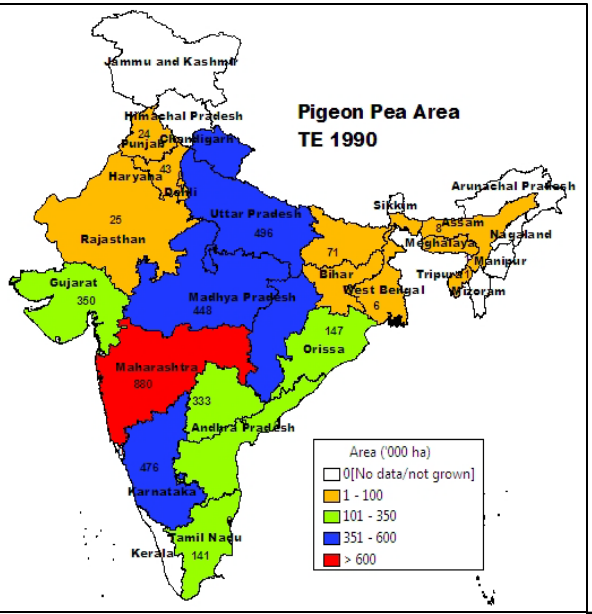


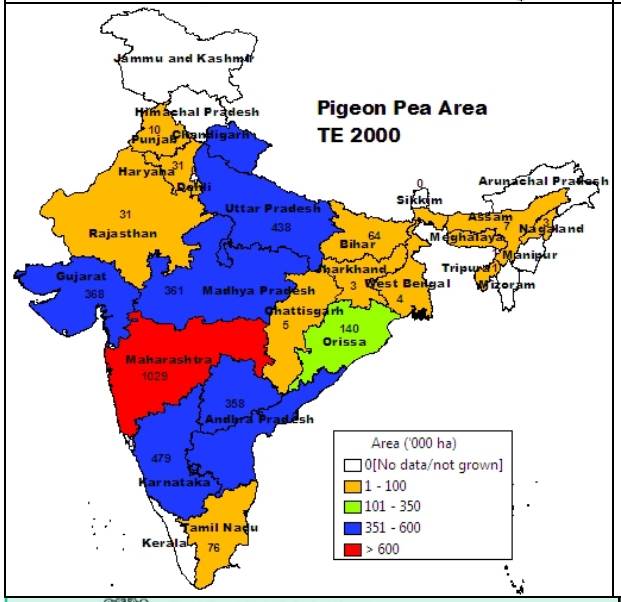
Shift in area and production from north eastern plain and north western plain zones to central and southern zones

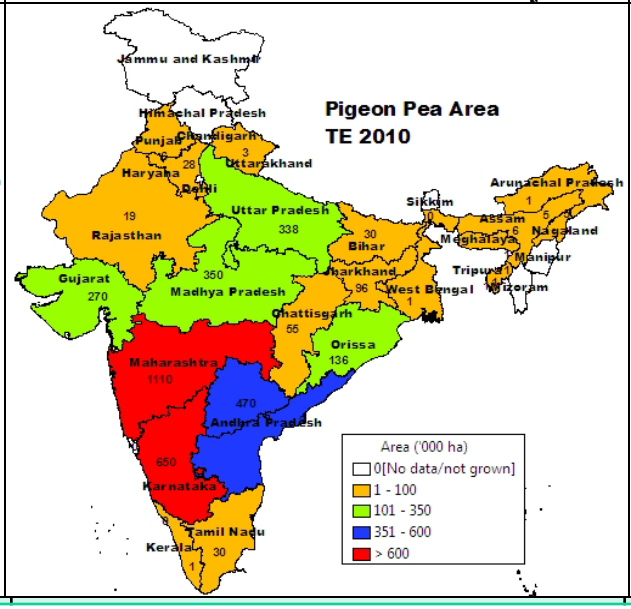
Changes in Pigeonpea area

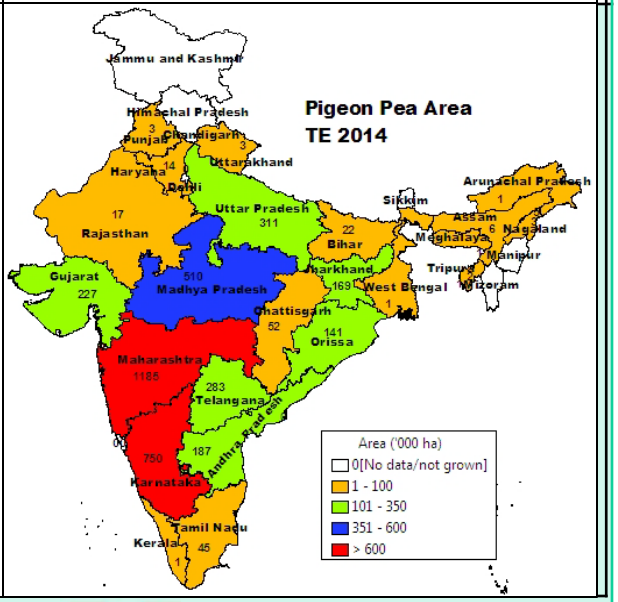




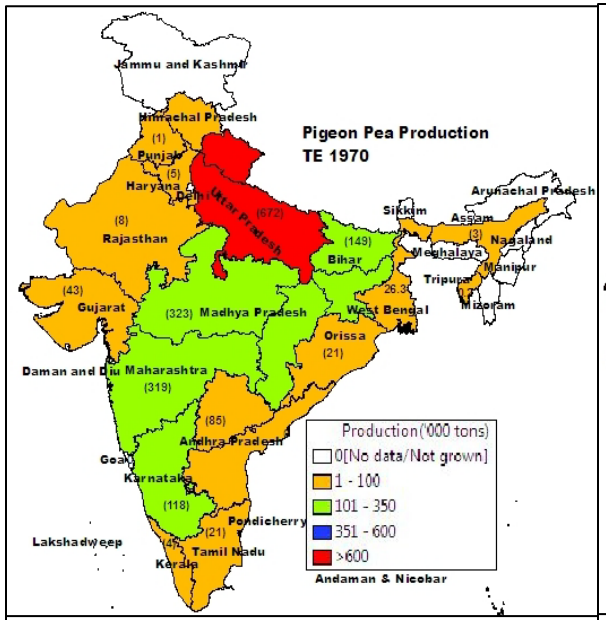


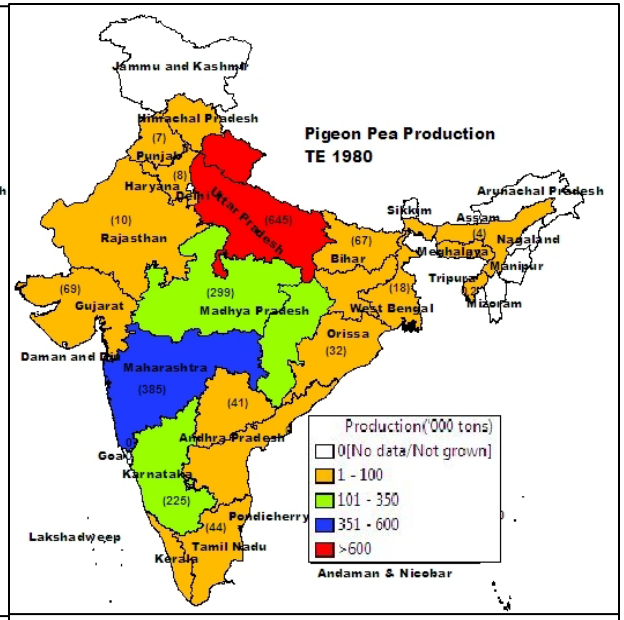


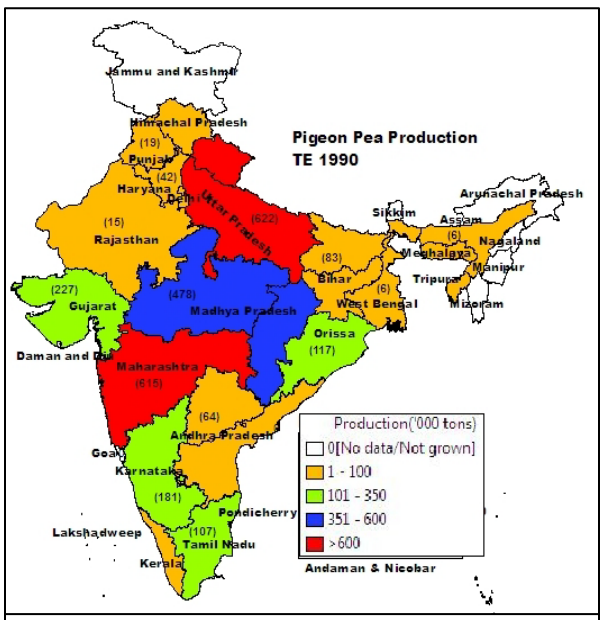


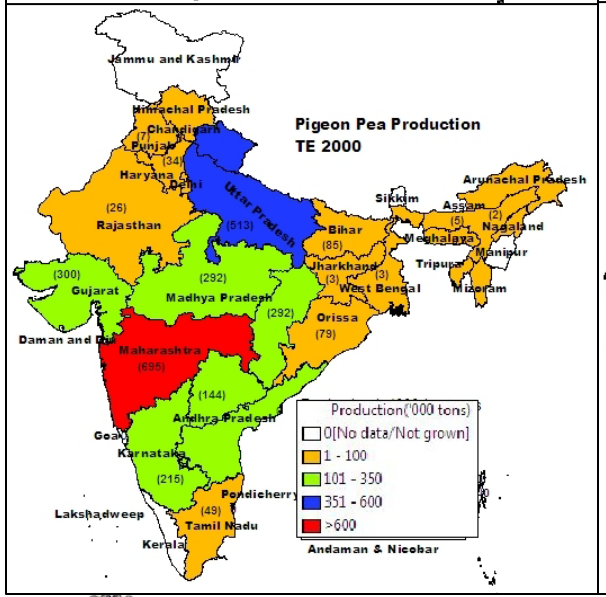


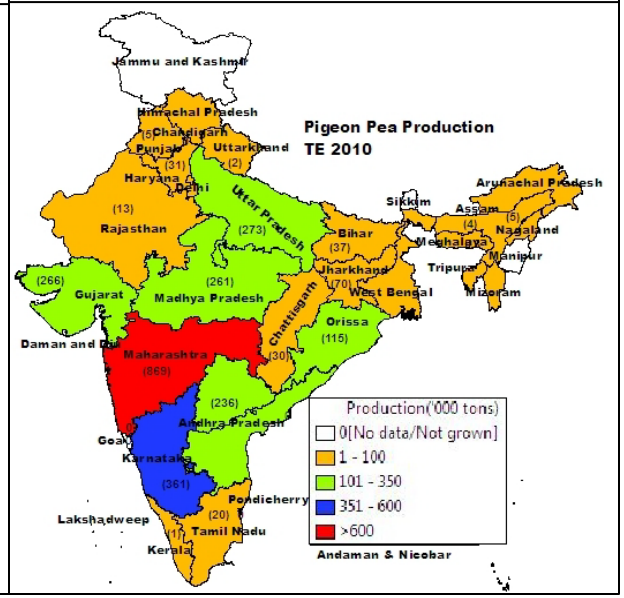
Changes in Pigeonpea production

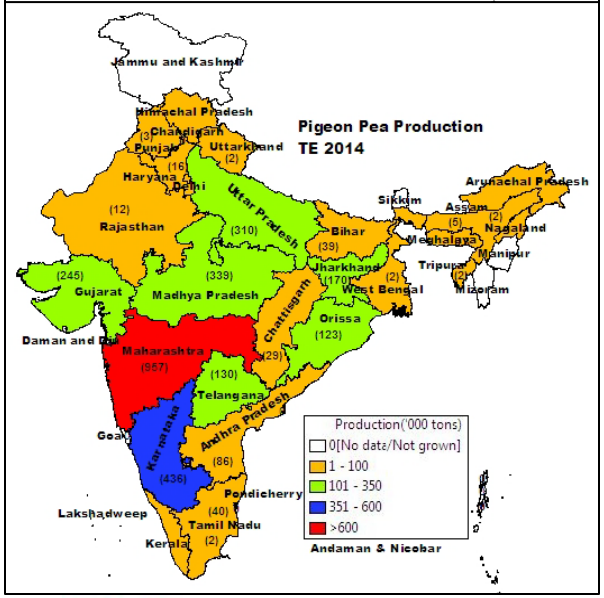




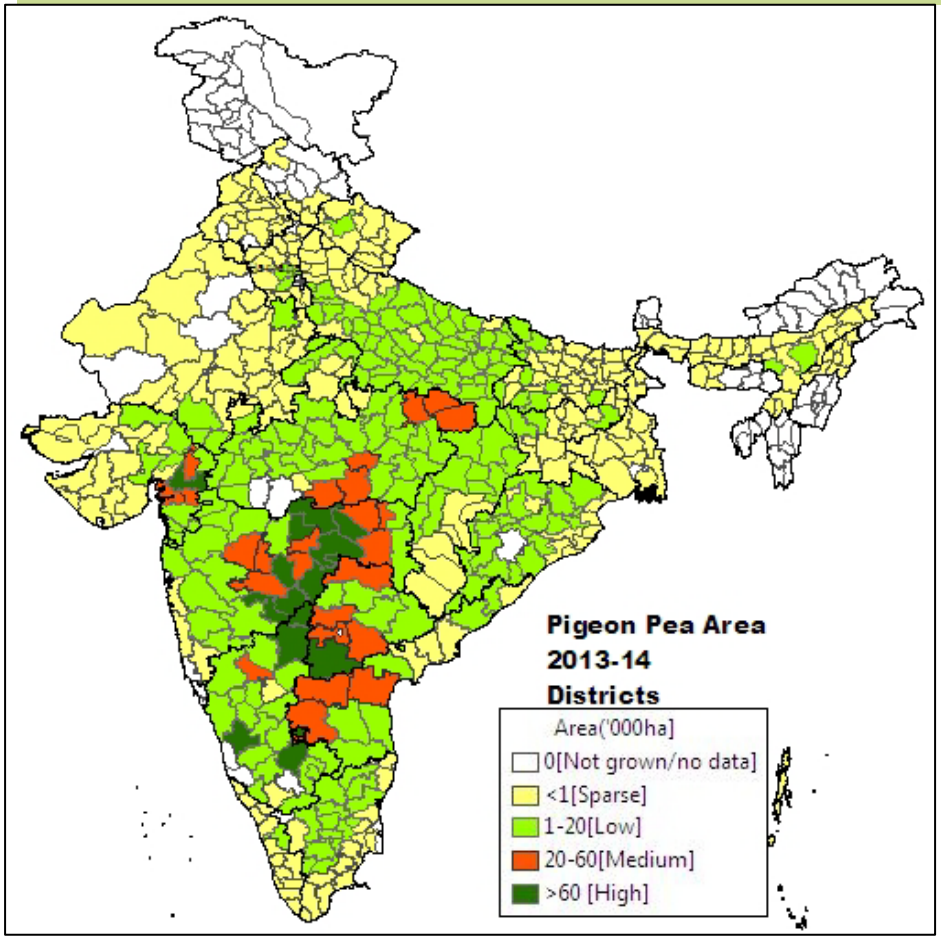


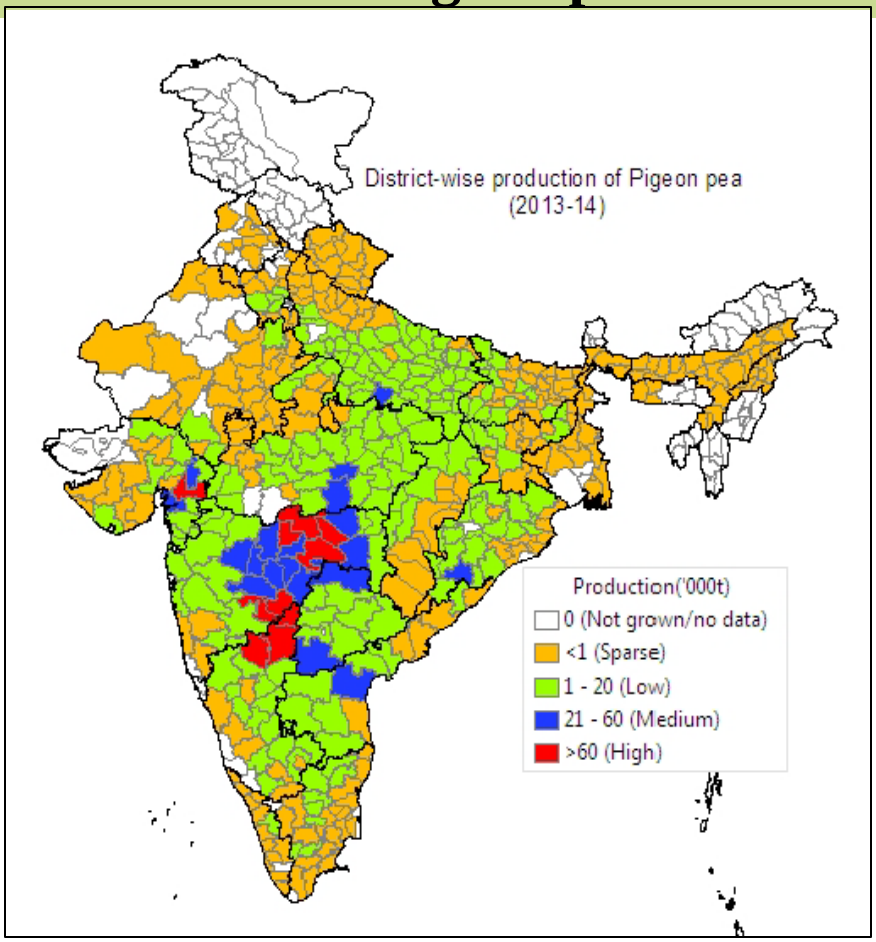






Emerging Area and Production Centres of Pigeon pea

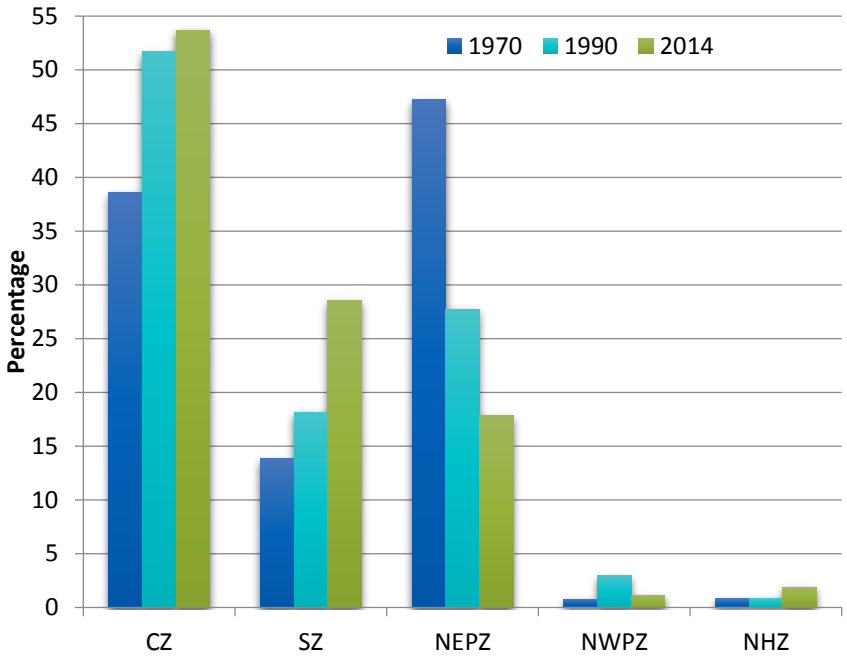




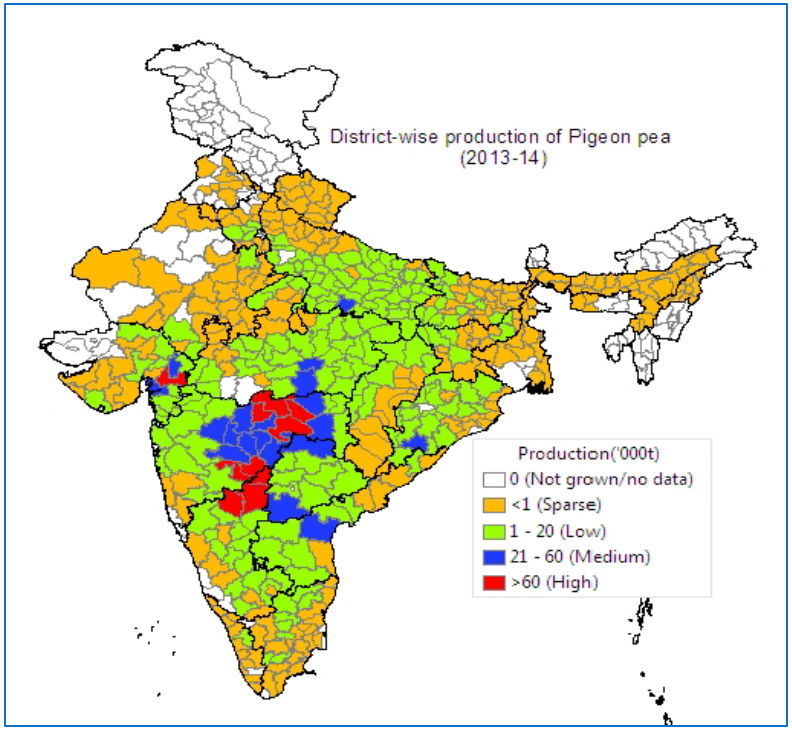
Major districts are- Latur, Yavatmal, Amravati (Maharashtra) Kalaburgi, Yadgir (Karnataka) Mehboobnagar, Rangareddy (Telangana)

Identifying emerging production centers of pigeon pea in India

Agro-climatic zone wise shifts in share of pigeon production to all India Production (1970-2014)



District wise pigeon pea production concentration



- Shift in area and production from north eastern plain and north western plain zones to central and southern zones
- Emerging pigeon pea production centers are located in the states of Maharashtra, Karnataka and Telangana
- Major districts are-Latur, Yavatmal, Amravati(Maharashtra) Kalaburgi, Yadgir (Karnataka) Mehboobnagar, Rangareddy (Telangana)

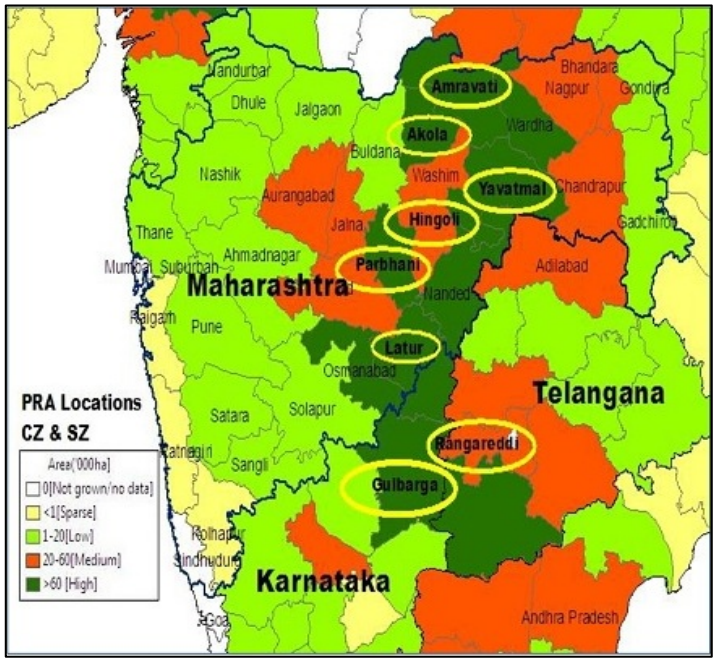
Selection of districts, blocks and villages for focus group discussion in Central Zone (Maharashtra state)

Particulars	Marathwada region			Vidarbha region		
Selected Districts	Parbhani	Latur	Hingoli	Amravati	Yavatmal	Akola
Selected Blocks	Manwath and Parbhani	Latur and Ausa		Achalpur and Pharatwada	Kalamb and Babulgaon	Patur and Akola
Selected Villages						
No of focus groups discussion	2	2	1	2	2	2
No of farmers in each group	18	15-20	10	16-22	15-20	10-12

Selection of districts, blocks and villages for focus group discussion in Southern Zone (Karnataka and Telangana states)

Particulars	Karnataka		Telangana	
Selected Districts	Gulbarga (Kalaburgi)		Rangareddy	
Selected Blocks	Gulburga	Chittapur	Tandur	Vikarabad
Selected Villages	Basavapattana, Hatagunda	Kalgi, Wacha	Tandur	Kashimpur
No of focus groups discussion	1	1	1	1
No of farmers in each group	15-20	10-15	10	16

Locations of Focus group discussions in Central and Southern regions for identifying production practices, varietal diversity, constraints and farmers' preferences for varietal traits



- 12 Focus group discussions were made in major pigeon pea producing districts of Maharashtra, Karnataka and Telangana during Jan-March 2016.
- No. of farmers in each focus group were 12-20.

Major cropping systems

- Maharashtra- pigeon pea mostly inter-cropped with cotton, soybean and green gram
- Karnataka and Telangana- sole crop

Major abiotic & biotic constraints

- Moisture stress especially during flowering and pod formation
- Major pests of economic importance are pod borer, pod fly and white grub
- Disease- Wilt

Socio-economic constraints

- Semi formal seed systems and low seed replacement
- Low profitability relative to competing crops or companion crops in the intercropping system

Prominent pigeon pea varieties in the Central region (Maharashtra) and their adoption (2015)

Marathwada (Latur, Parbhani, Osmanabad)			Vidarbha(Amravati, Yavatmal, Akola)		
Varieties	Institution of origin	% share in pigeon pea area	Varieties	Institution of origin	% share in pigeon pea area
BSMR- 736	MAU, Parbhani	60	Maruti (ICPL-8863)	ICRISAT	60
BSMR-853	MAU, Parbhani		Asha (ICPL 87119)	ICRISAT	10
BDN-711	MAU, Parbhani		Nirmal	Private sector	20
Maruti (ICPL-8863)	ICRISAT	10	PKV Tara	PDKV Akola	10
Nirmal/Yashoda/ Ganesh and local varieties	Private sector	10	TS-3R	ARS Gulburga	
BDN 2	MAU, Parbhani	10	ICPH- 2740	ICRISAT	
BDN 708	MAU, Parbhani		Local varieties		

Prominent pigeon pea varieties in the Southern region and their adoption (2015)

Karnataka (Kalaburgi)			Telangana (Rangareddy)		
varieties	Institution of origin	% share in pigeon pea area	varieties	Institution of origin	% share in pigeon pea area
TS-3R	ARS, Gulburga	60	TS-3R	ARS Gulburga	60-70
Maruti(ICPL-8863)	ICRISAT	20	Maruti(ICPL-8863)	ICRISAT	10
Local landraces (Gullal, Jodh-mukha/ double moog)	-	10	Local landraces		15
Asha(ICPL 87119)	ICRISAT	10	Laxmi (ICPL-85063)	ICRISAT	1-2

Farmers' preferred varietal traits in pigeon pea improved cultivars

Preferred traits	Maharashtra		Karnataka	Telangana
	Marathwada	Vidarbha	Gulbarga	Rangareddy
High yield	****	****	****	****
Drought Tolerance	*****	*****	*****	*****
Pod borer resistance	*****	****	**	**
Wilt resistance	**	**	****	****
Medium duration	****	****	***	***
White grub resistance	****	***	*	*
Medium Plant Height	***	**	***	***
Higher no of branches/pods	****	****	****	****

* denotes least preferred and ***** most preferred

Processors' varietal traits preferences-

- Seed coat texture for higher dal recovery (easy to remove)
- Uniformity in seed size (medium size) and bold grain
- Seed colour- most preferred is pink/light orange

Selection of districts, blocks and villages for focus group discussion in NWP Zone (Haryana and Punjab)

Particulars	Haryana
Selected Districts	Jhajjjar & Rohtak
Selected Blocks	Bahadurgarh, Jhajjjar, Kalanaur
Selected Villages	Badli, Kair, Silana, Silani
No of focus groups discussion	4
No of farmers in each group	8-10 farmers

Particulars	Punjab
Selected Districts	Ludhiana
Selected Blocks	Jagraon, Sudhar
Selected Villages	Mohi, Malak
No of focus groups discussion	3
No of farmers in each group	6-8 farmers

Prominent pigeon pea varieties in Haryana and their adoption

Haryana (Jhajjiar, Rohtak)				
Varieties	Year of release	Maturity period days	Institution of Origin	% share in pigeon pea area
Manak (H77-216)	1985	120-130	CCS, HAU	90%
Paras (H82-1)	1998	133-145	CCS, HAU	10%
Punjab (Ludhiana)				
AL-15	1981	130	PAU	20%
AL-201	1993	140	PAU	60%
PAU881	2007	135	PAU	10%

Major crop rotations followed in Haryana

Pearl millet-wheat, Paddy-wheat, cotton-wheat, Pigeon pea-wheat

Pigeonpea - grown as sole crop

Major crop rotations followed in Ludhiana,Punjab

Paddy-Wheat / Musturd/ Potato

Pigeon pea -Wheat/Barley, *Pigeon pea -Sufed Senji (Fodder) -Sugarcane*

Farmers' preferred varietal traits in pigeon pea for improved cultivars in Haryana and Punjab

Preferred traits	Haryana (Jhajjar & Rohtak)	Punjab (Ludhiana)
Heat Tolerant	*****	
Suitability for Early Sowing	*****	****
Short Duration (upto 140 Days)	*****	****
Pod borer Resistance	*****	*****
Salt Tolerant	***	
Medium to Short Plant height (upto 4 feet)	****	*****
More number of Branches/ Pods/Seeds per pod	***	
Seed colour	**	
Bold seed size	***	

Processors' varietal traits preferences-

- Minimum % of green seed (to sow wheat even unmatured field also harvested)
- Uniformity in seed size, bold grain (medium size), light orange/ pinkish colour

- Major abiotic & biotic constraints
- Salinity problem
- Pod borer
- Other problems like damage by Blue bulls
- Socio-economic constraints
- - Seed source/supply, extension

Area under pigeon pea is consistently declining

- Heavy incidence of Pod borer
- Salinity problem due to depletion of top soil
- No awareness of new high yielding varieties and seed supply constraint
- Low profitability relative to competing crops like paddy, pearl- millet, cotton

Farmers' preferred varietal traits in pigeon pea for improved cultivars in Haryana

Preferred traits	Haryana (Jhajjar & Rohtak)
Heat Tolerant	*****
Suitability for Early Sowing	*****
Short Duration (upto 140 Days)	*****
Pod borer Resistance	*****
Salt Tolerant	***
Medium to Short Plant height (upto 4 feet)	****
More number of Branches/ Pods/Seeds per pod	***
Seed colour	**
Bold seed size	***

Processors' varietal traits preferences-

- Minimum % of green seed
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THANK YOU