

Legume-cropping and research strategies in India

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Integral part
of the Indian
food basket

29 % World area and 19% World production

Indian Paradox

- Largest producer of pulses – 17.82 Million Ton in 2016 – 17
- Largest consumer of pulses
- Also the largest importer

(Unit: Million Tonnes)

Table-1: Pulses Production, Trade, and Consumption of India				
2015-16	2016-17**	Particulars	Jan-17	Sources
16.35	17.82	Production	22.14#	DES
5.79	4.67	Total Imports	5.42###	DOC
22.14	22.49	Availability	27.56	
0.25	0.27	Total Exports	0.12###	DOC
21.89	22.22	Total Availability for Domestic Consumption	27.44	

Source: Directorate of Economics and Statistics (DES), Department of Agriculture & Cooperation (DAC) and Department of Commerce (DoC)

90% of the global pigeonpea, 75% of chickpea and 37% of lentil area

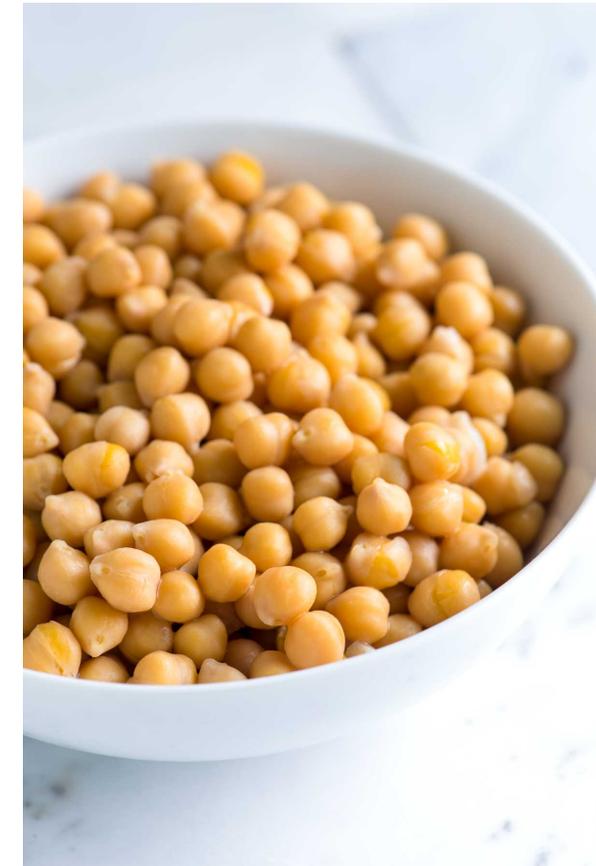
We export too!!!

(Unit: Thousand Tonnes)

HS Code	Pulses/Year	2014-15	Share in Total Pulses Export (%)	2015-16	Share in Total Pulses Export (%)	2016-17 (Apr-Dec)	Share in Total Pulses Export (%)
07131000	Peas (<i>Pisum Sativum</i>)	3.91	1.76	6.44	2.52	6.43	6.53
07132000	Chickpeas (Garbanzos)	190.23	85.64	216.93	84.87	61.21	62.16
07133100	Moong/Urad	4.25	1.91	6.39	2.5	7.88	8.00
07134000	Lentils (Mosur)	7.98	3.59	11.77	4.60	11.76	11.94
07136000	Pigeon Peas (Tur)	1.22	0.55	4.02	1.57	9.22	9.36
Total Pulses		222.14		255.60		98.47	

Source: Department of Commerce

- Chickpeas contributes the single largest share in India's export basket of pulses registering 85.64% and 84.87% share in the total pulses export during 2014-15 and 2015-16 respectively.





12 seeds farm in
the Himalayas

Legumes in sequential / Inter cropping

- Summer oilseed and pulses
- Pulses in rice fallow

- Cereal+ pulse (Barley /Wheat + Lentil/Gram)
- Oilseed+ pulse (Mustard /linseed + lentil/ Gram)
- Pulse +pulse (Gram +Lentil/green pea) Sugar cane +Pulse (Muung beans / pigeon pea)

Horse gram

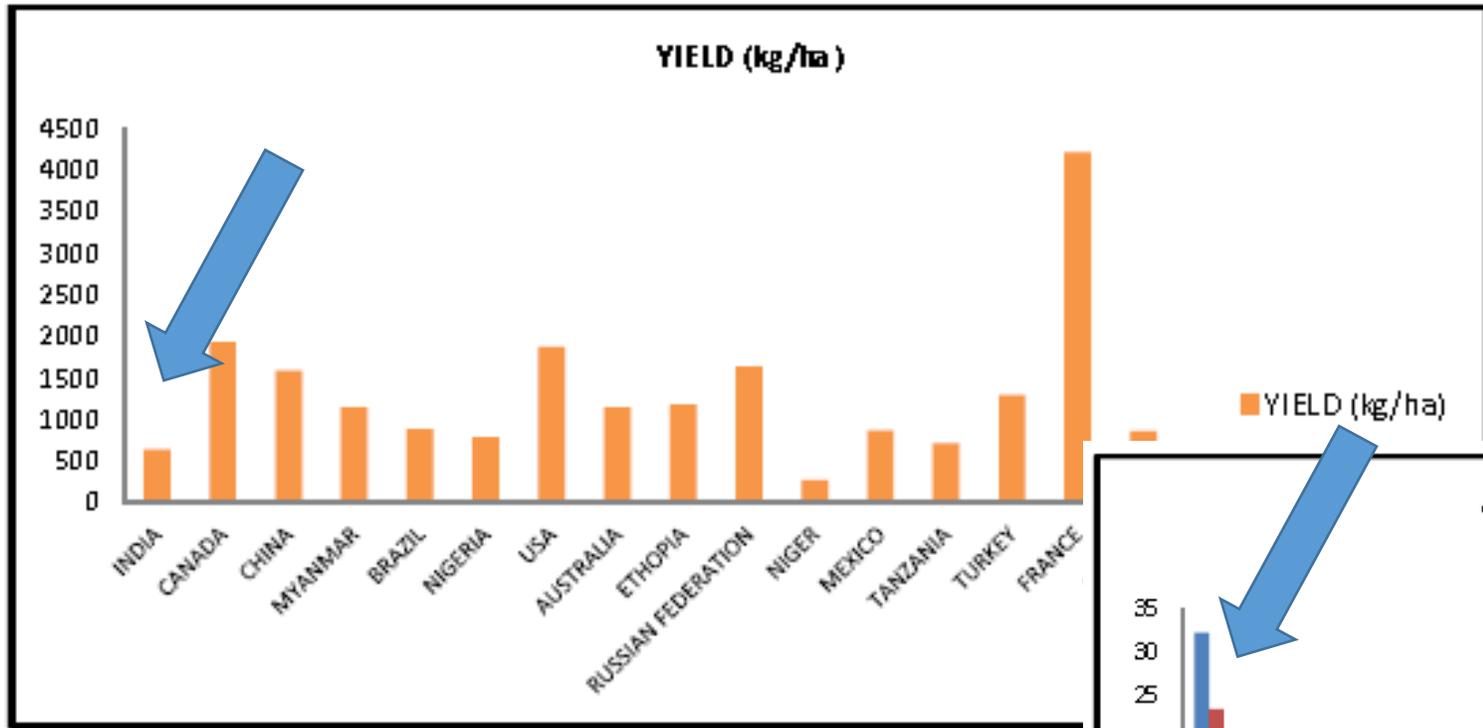


Where noting much grows...

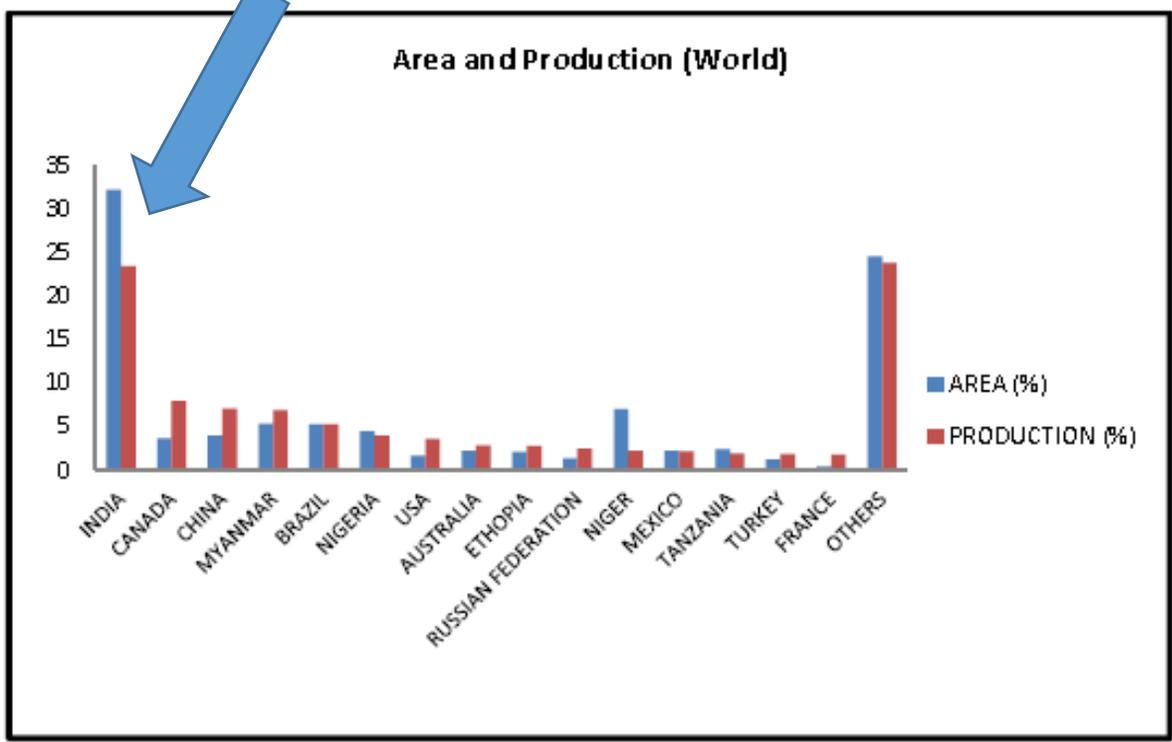
Drought resistance...

Forage / Green manure





Problem lies here...



PULSES

1958



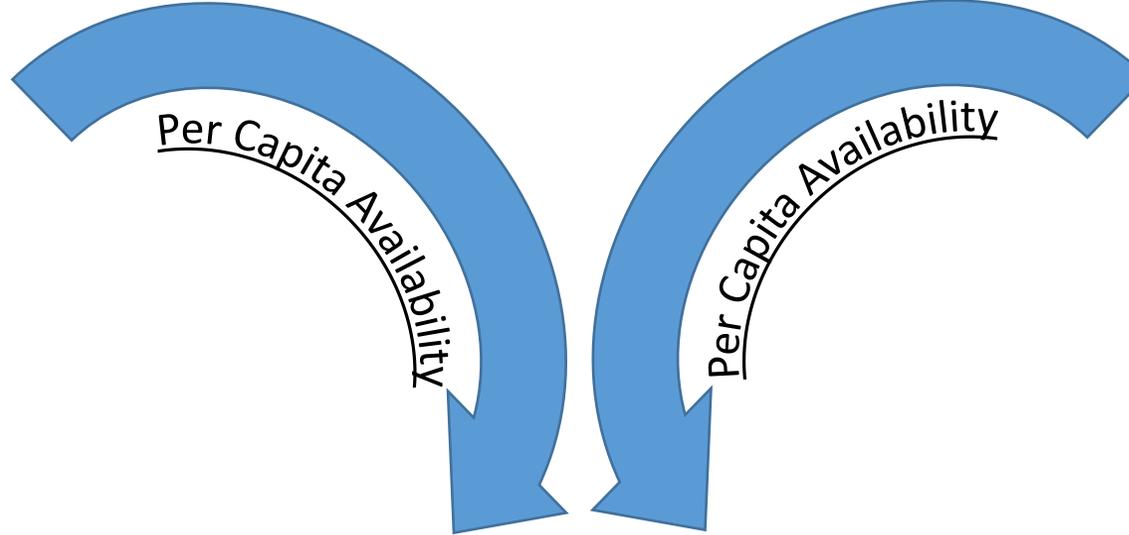
75 g/day

CEREALS

1961



400 g/day



2011

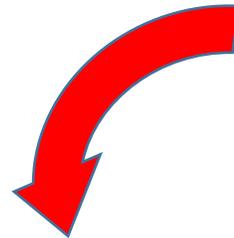


40 g/day

2011



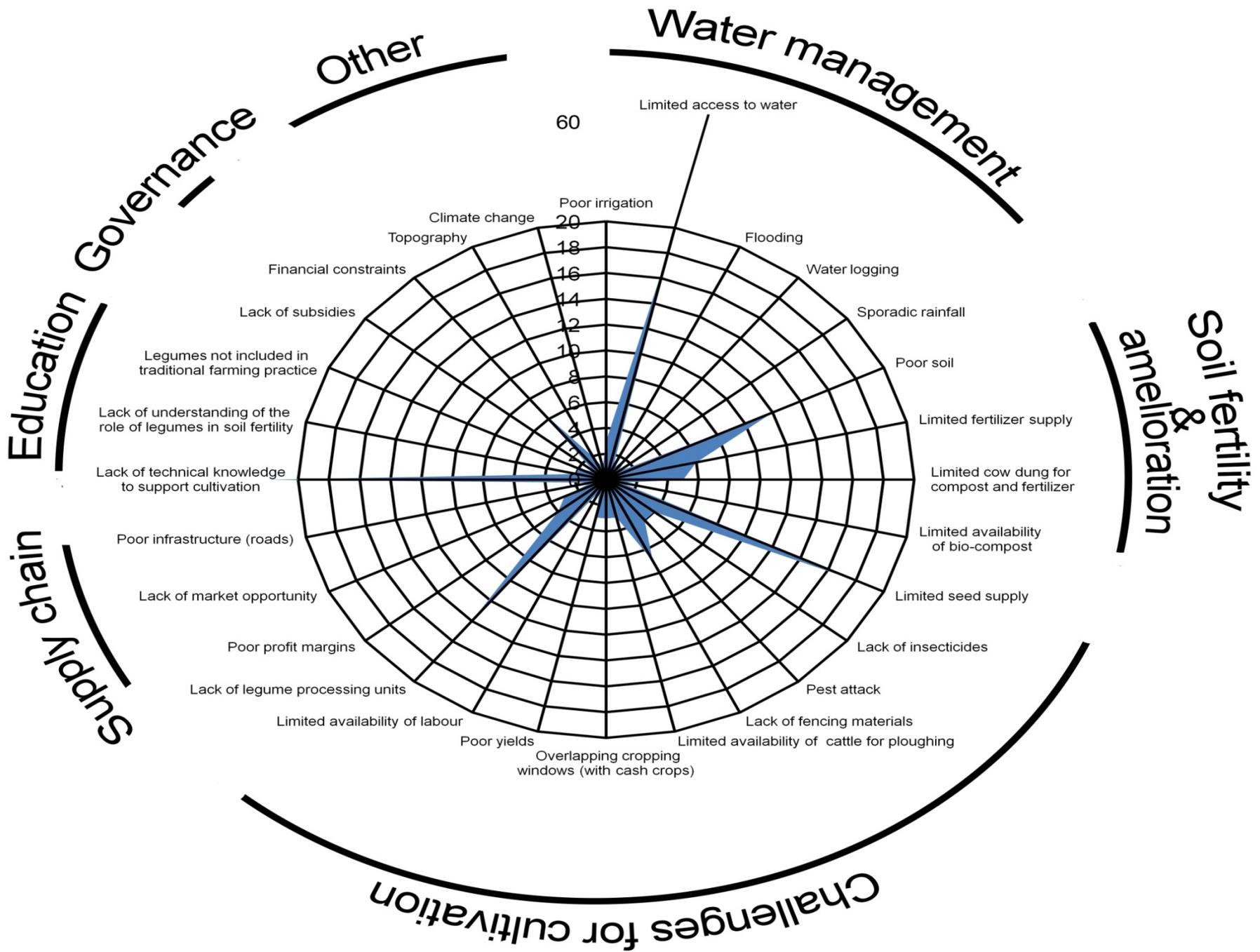
424 g/day



MALNUTRITION

*Chopra & Swamy 1975

*Open Government Data (OGD) Platform India.
www.data.gov.in



Other

Water management

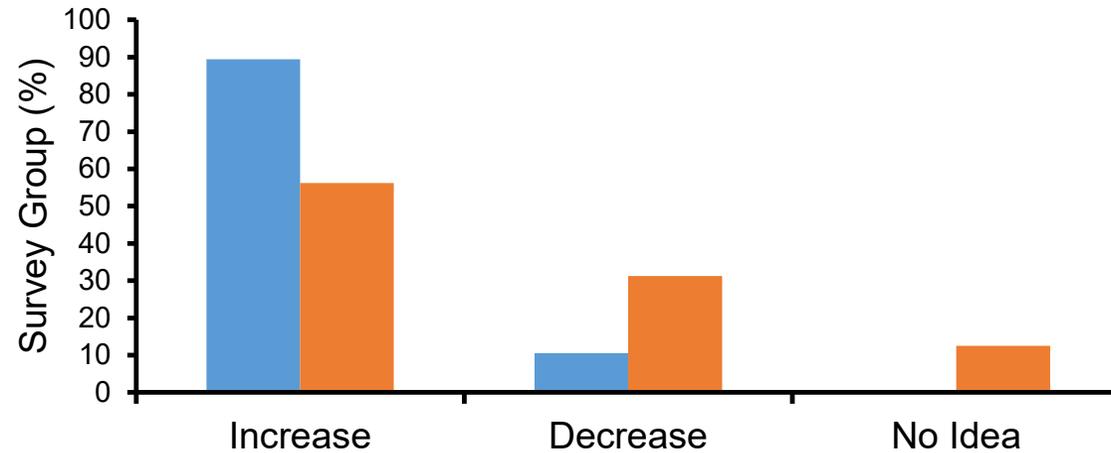
Soil fertility & amelioration

Governance
Education

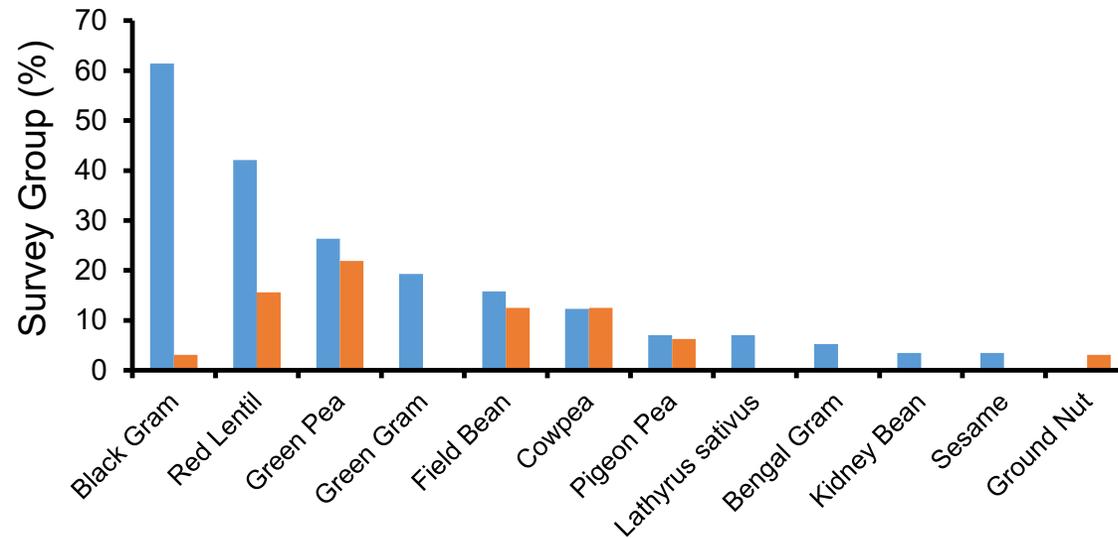
Supply chain

Challenges for cultivation

Legume and soil fertility



- Greater proportion of the farming community know that legume can increase soil fertility
- Although among those farmers, 49.12% of the non-tribal and 21.88% of the tribal community do not know how can legume increase soil fertility



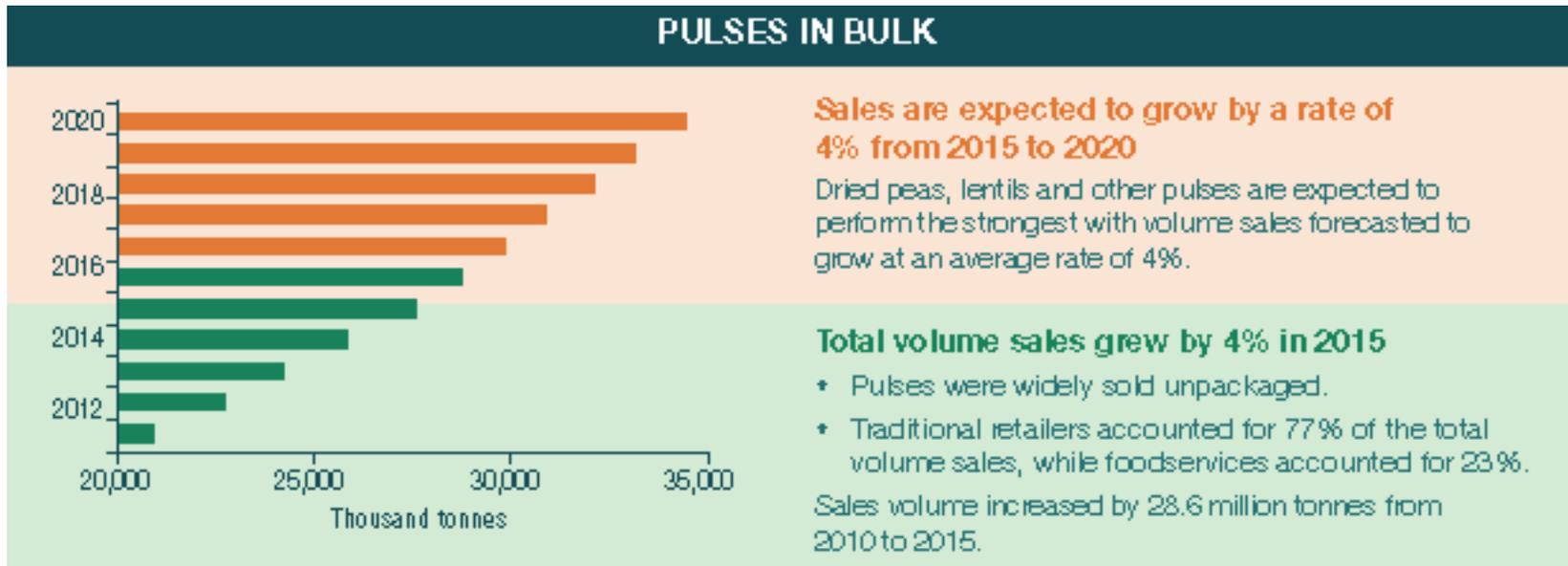
- Perception about the legumes those are good for soil fertility is different among the two farming community

Major bottlenecks in production

- Cultivated generally in poor soil- often in semi arid areas.
- Late sowing of winter legumes due to climatic vagaries, leads to reduced length of growing period. A sudden rises in temperature that follows not only induces forced maturity but simultaneously invites several biotic stress viz., diseases and insects pests.
- Indian soils especially, north -western soils having high pH contrary to eastern and north eastern part which are characterized as acidic soils. Leads to micronutrient deficiency. (Singh et al. , 2013d)

30% of the world's pulse product launches

During 2000 – 2015 nearly 2000 products launched that used Pulse as ingredient



Scope for further diversification



Pulse Research Institutes and Organisations

Indian Institute of Pulses Research

It was established in the year 1983 by the Indian Council of Agricultural Research (ICAR) to carry out basic strategic and applied research on major pulse crops. The Institute develops appropriate production and protection technologies, production and supply of breeder seeds of improved varieties, demonstration and transfer of technologies and strategic coordination of pulse research through wide network of testing centers across the country.



IIPR

Crop Improvement

Plant biotechnology

Crop Production

Crop Protection

Basic Sciences

Social Sciences

**16 ongoing
internally funded
projects**

**40 Extramural
ongoing projects**



Indian Institute of Pulses Research

भारतीय दलहन अनुसंधान संस्थान

Pulses For Nutritional Security

Missing in research

- Rich diversity of legumes... A small region in the Western Ghats alone has 50 indigenous varieties of legumes. Not assessed for nutritional potential etc.
- Participatory research work to bottom up indigenous knowledge about scope & barriers in legume cultivation.
- Connection between legume production and farm level ecosystem health.

The Keystone species in Ecological Intensification

Pollination

Natural Predator management

Of course soil fertility

We need to know more in Indian context

