Indian Journal of AgriVet Research
Volume 1, Issue 4, 2021, Pp. 157-161
Available online at https://aavpublisher.com
ISSN: XXX-XXX

ORIGINAL ARTICLE

Approaches for achieving self sufficiency in production of pulses in India

[1] Seedari Ujwala Rani, [2]Rekha Mahato & [3]Geeta M.L

[1]Assistant Professor, Department of Agricultural Economics, ANGRAU
[2]Molecular Biology and Biotechnology ,NIPB, New Delhi
[3]Division of Agricultural Economics, IARI, New Delhi

Corresponding author: ujwala.aeco@gmail.com

Article Received: 12.04.2021 *Article Published: 18.04.2021*

ABSTRACT

Pulses in India have long been considered as the poor man's major source of protein. Pulses are grown on 22-23 million hectares of area with an annual production of 13-17 million tonnes (mt). India accounts for 33% of the world area and 22% of the world production of pulses. The major pulse crops grown in India are chickpea, pigeon pea, lentil, green gram, blackgram, and field pea. Although it is the world's largest pulses producer, India has been importing 3-4 million tons (MT)of pulses every year to meet its domestic demand However, during the last decade, growth in pulses production has increased significantly and achieved a record output in pulses production at 18.1 MT in 2010-11 with an all time high production achieved in chickpea (8.25 MT), moong (1.82MT) and urad (1.74 MT). Even though pulses production increased significantly during the last decade, continuing the faster growth is a bigger challenge for researchers, extension agencies and policy makers because productivity of pulses in India (694 kg/ha) is lower than most of the major pulse producing countries. Shortfall in pulses has been attributed to a number of factors, the major ones being the increasing population, rising income, abrupt climatic changes, socio- economic conditions and poor marketing opportunities.

Key words: Pulse, Production , million tonnes, challenge, strategies

INTRODUCTION

India is the largest producer, consumer and importer of pulses. Pulses are grown across the country with the highest share coming from Madhya Pradesh (24%), Uttar Pradesh (16%), Maharashtra (14%), Andhra Pradesh (10%),Karnataka (7%) followed by Rajasthan (6%),which together share about 77% of the total pulse production, while the remaining 23% is contributed by Gujarat, Chhattisgarh, Bihar, Orissa and Jharkhand. Among pulses, chickpea (45.1%) occupies the major share, followed by pigeonpea (15.7%), moong (9.9%), urad (9.6%), and lentil (7.3%), which together account for 87% of the total pulses production. Much of the pulses production has been slowly shifted from kharif to rabi and now the rabi share is increased to about 61.0% of the total pulses production. Although it is the world's largest pulses producer. India has been importing 3-4 million tons (MT) of pulses every year to meet its domestic demand. Major pulse crops grown in India are chickpea, pigeonpea, mungbean, urad bean, lentil, field peas and Pulses are grown on an area of 22-23 million hectares with an annual production of 13-18 million tons (MT). India accounts for 33% of the world area and 22% of the world production of pulses. About 90% of the global pigeonpea, 65% of chickpea and 37% of lentil area falls in India, corresponding to 93%, 68% and 32% of the global production, respectively (FAOSTAT 2011). However, during the last decade, growth in pulses production has increased significantly. India achieved a record output in pulses production at 18.1 MT in 2010-11 with an all-time high production achieved in chickpea (8.25 MT), moong (1.82MT) and urad (1.74 MT). Even though pulses production increased significantly during the last decade, continuing the faster growth is a bigger challenge for researchers, extension agencies and policy makers. For some crops such as oilseeds, earlier experience shows most of the success is short lived if we don't align production technology with policy support (Reddy 2009). Still, the productivity of pulses in India (694 kg/ha) is lower than most of the major pulse producing countries and yield potential attained at research stations and on-farm demonstrations.. There is a steep increase in the prices of pulses due to supply constraints to meet the growing demand due to population increase. The net availability of pulses has come down from 70.1gm/ day/person in 1951 to 31 gm/day/person (Indian Council of Medical Research recommends 65 gm/day/ capita) in 2008. The research and development investments on each crop should be in proportion to the share of the crop in the respective category. More emphasis should be given to rabi pulse crops as their production share is much higher and increasing in recent years.

STATUS OF CONSUMPTION , IMPORT OF PULSES IN INDIA

Production of Rice and wheat increased substantially, while it was almost stagnant in pulses at 18 Mt. Due to stagnation in area (23 million ha) and production of pulses together with increase in population, the percapita availability of pulses fell drastically. It declined from 69 grams /day in 1960-61 to 31.56gm/day in 2010-11 (As shown in fig 1). India is presently one of the largest importers of pulses. India has followed a liberal policy towards the import of pulses during the last two decades. The pulses import was placed under the Open General License in 1979, allowing anyone to import pulses in to India without any approval or restrictions. Because of our domestic production is short of demand, India is a regular importer of pulses. For fulfilling domestic needs, Govt. allowed duty free imports from June 8, 2006

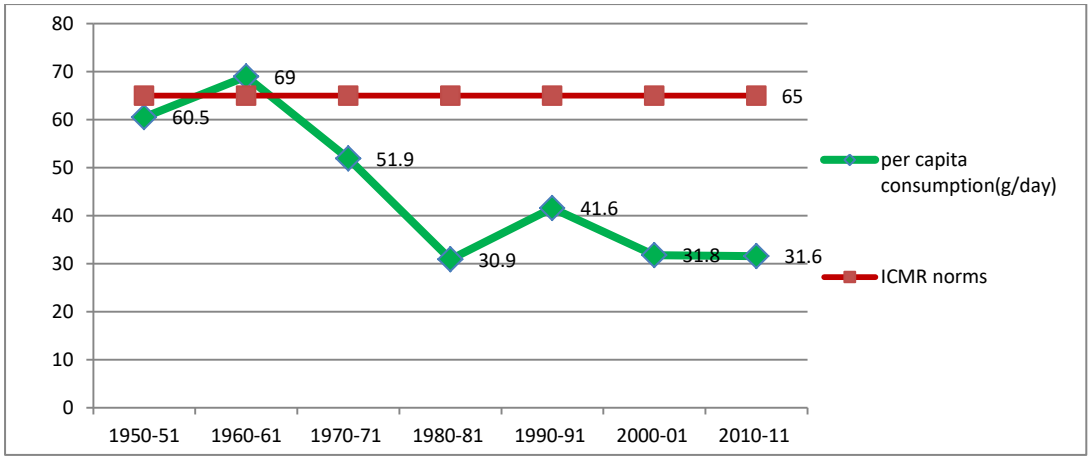

Fig 1 Per capita Consumption of pulses (g/day) Source : India stat, 2013

Approaches for achieving self sufficiency in production of pulses in India

In order to achieve self-sufficiency in pulses, the projected requirement by the year 2050 is estimated at 26.5 Mt. To meet this requirement, the productivity needs to be enhanced to 978 kg/ha, and an additional area of about 3.0 M ha has to be brought under pulses besides reducing post-harvest losses. This requires a proactive strategy from researchers, planners, policy-makers, extension workers, market forces and farmers aiming not only at boosting the per unit productivity of land, but also at reduction in the production costs.

i) Adoption of existing technology for bridging the yield gap

Farmers generally apply sub-optimal doses of fertilizers, insecticides and limited irrigations for pulses after meeting the requirements of wheat, rice and vegetable crops. Therefore, wide gaps also exist between yields realized in experimental plots, frontline demonstration plots and farmers' fields. Large-scale on-farm demonstrations con- ducted in the last 5 years have clearly shown superiority of new technologies over the local practices. Adoption of these technologies can increase pulse production by at least 13–42% in the country. These efforts may easily push average productivity from 637 to 737 kg/ha, which means expected production of 17.69 Mt by 2020.

ii) Improving seed replacement rate

The breeder seed production has increased from 4100 q in 1998–99 to 13,400 q in 2009–10. However, the efforts have been inadequate in meeting the seed requirement mainly due to poor conversion of breeder seeds into foundation and certified seeds, resulting in the poor availability of quality seeds. Presently, the total supply of quality seeds of pulse varieties is around half of the present requirement of 13 lakh q, assuming 15% seed replacement rate. Therefore, necessary infrastructure needs to be strengthened at the seed corporations. For seed multiplication of foundation and certified seeds, there is need to identify private seed growers. The intention should be to double the national seed production while making seed readily available to farmers by virtue of a decentralized approach. Advance seed planning is required for each state, rolling out seed plans with appropriate emphasis to the newly released varieties. Seed buffer of

improved varieties must be maintained at the State Seed Corporation level. Public–private partnership needs to be promoted in seed business, farmers' participatory seed production needs to be encouraged for farmer to farmer seed spread. These efforts will adequately improve seed replacement rate.

iii) Provision for life-saving irrigation in pulse-growing districts

A quantum jump in productivity can be achieved by applying life-saving irrigation, especially in rabi pulses grown on residual moisture. Rain water harvesting and for life-saving irrigation is necessary for yield stability and higher productivity. For this, farm ponds and community reservoirs need to be created in every village of the pulse-growing districts of the country. Provision of micro-irrigation through sprinklers or drip should also be made at the Panchayat level.

iv) Improved varieties/hybrids/transgenics

For a major breakthrough in yield, there is urgent need to broaden the genetic base by strengthening prebreeding and developing core sets of germplasm, harnessing hybrid vigour through development of CMS-based hybrids in pigeonpea, mapping and tagging of genes/ QTLs and marker-assisted selection for resistance to insect pests and diseases, yield and grain quality; gene pyramiding for stable resistance, development of transgenics in chickpea, pigeonpea and Vigna for problems hitherto unsolved through conventional means like Helicoverpa pod borer and drought, and genomic research for understanding the structure and function of genes.

v) Area expansion under pulse crop

Pulses have tremendous scope for area expansion. Short- duration varieties of pulses can fit well in various cropping systems. About 2.5 M ha additional area can be brought under different pulses through cropping system manipulation, like mungbean and urdbean as catch crop in summer/spring under cereal based cropping systems of IGP, intercropping short-duration pulses (mungbean, urdbean, cowpea) in sugarcane, millets cotton, etc. advocating new cropping systems such as pigeonpea, wheat in the north, rice, lentil in the east and urdbean rice in the southern peninsula. Out of 10.5 M ha rice fallows of eastern (Uttar Pradesh, Bihar, West Bengal, Assam), Central (Chhattisgarh) and southern states (Andhra Pradesh, Karnataka, Tamil Nadu), 2.5 M ha can be utilized by expanding lentil, mungbean and urdbean cultivation.

vi) Cash and Credit availability to small farmers

Cash is a key element for enabling smallholder farmers to shift from low input low output to high input-high output agriculture. But access to credit by these farmers is low because of their low asset base, low risk bearing ability and high risk environments. This can be effectively tackled by the insurance-linked credit to pulse crops without any collateral security. The scale of finance should be sufficient enough to cover all the costs of the recommended practices.

vii) Marketing channel

Markets for legumes are thin and fragmented due to scattered production and consumption across states. Farmers/village traders sell their marketed surplus immediately after harvest, while some large traders/wholesalers trade between major markets and hoard pulses to take

advantage of speculative gains in the off-season. Due to this, farmers do not benefit from the higher market prices of pulses. Investments in market infrastructure, cold storage, warehouses, market information systems both in public and private sector through PPP models and viability gap funding models need to be encouraged in SAT India.

viii) Farm mechanization and land lease market:

One of the reasons for success of expansion of area under chickpea in Andhra Pradesh is the development of suitable varieties for farm mechanization. Hence, farm mechanization in peak season activities like harvesting and threshing needs to be encouraged through the distribution of subsidized farm machinery to cope with labour shortage and higher wage rates.

ix) **Public–private partnership**

Besides public institutions (ICAR, SAUs), development departments and other organizations like NGOs, seed companies, farmers' associations, civilized societies and private entrepreneurs should also be involved in promoting pulse production by way of quality seed production, transfer of technology, processing and value addition supply of critical inputs.

x) Supplemental irrigation

With the expansion of irrigation facilities through ground water and also through canal irrigation systems, there is a scope for expansion of irrigated area under pulse crops, especially summer, rabi and spring season crops, as yield response is higher. In short, to increase area and production of pulse crops we need crop specific and region specific.

REFERENCES

IIPR. 2012. AICRP on chickpea- Annual report. Kanpur: Indian Institute of Pulses Research.

Reddy AA. 2009. Pulses Production Technology: Status and Way Forward. Economic and Political Weekly, Vol. 44, (52):73–80

DES.2011. Department of Agriculture and Cooperation, Ministry of Agriculture,

Reddy AA. 2005. Economics of pulses production and marketing in India *Agricultural Situation In India*: 875-84

Reddy AA . 2012. Strategies for reducing mismatch between demand and supply of grain legumes, *Indian Journal of Agricultural Sciences* **83** (3):243-59

FAOSTAT 2011).

India stat, 2013