ANNUAL CHICKPEA GROUP MEET, 2013

CHICKPEA: PERFORMANCE & DEVELOPMENT SCENARIO

JNKVV, JABALPUR
(24-26TH AUGUST, 2013)

****

The contribution of Chickpea in total pulses production is about 48% followed by Pigeon pea (16%), Urdbean (9%), Mungbean (7%), Lentil (6 %) and Field pea (4%).

1. CHICKPEA - SCENARIO (2011)

	Area (Lakh ha)	**Production (Lakh Tonnes)**	**Productivity (Kg/ha)**
World	132.02	116.24	880
India	83	77.02	828
% to World	63	66	

Source - FAO stats. & Department of Agriculture & Cooperation, GOI

1.1. MAJOR STATES - (2011-12)

Sr. No.	State	Area (Lakh ha)		Production (Lakh Tonnes)		Yield (Kg/ha)	
		Area	% to India	Prod.	% to India	State	Highest in the district
1.	M.P	30.44	36.68	32.90	42.72	1081	1405
2.	Rajasthan	14.34	17.28	10.61	13.78	740	1215
3.	Maharashtra	10.51	12.66	8.15	10.58	775	803
4.	Uttar Pradesh	5.77	6.95	6.84	8.88	1185	1285
5.	A.P.	5.65	6.81	5.20	6.75	920	1858
	All India	82.99		77.02		928	

Source – E&S, Department of Agriculture & Cooperation, GOI

2. PLAN-PERIOD SCENARIO :ALL INDIA

Five Year Plan	**Area (lakh ha)**	**Production (lakh tones)**	**Yield (Kg/ha)**	**% production change compared to previous plan**
Eighth - (1992-1997)	68.64	52.78	769	(+) 13.26
Ninth - (1997-2002)	*66.94*	*54.36*	*812*	*(+) 1.95*
Tenth - (2002-2007)	*68.18*	*54.71*	*803*	*(+) 0.55*
Eleventh - (2007-2012)	82.18	72.42	881	(+) 32.37

2.1. SALIENT FEATURES

- Ninth and Tenth plan: Stagnated APY.
- Eleventh plan : Major changes & Contributory factors-
- Quantum jump in APY
    - **In terms of area** - Karnataka (64%), Jharkhand (59%), Andhra Pradesh (41%), Rajasthan (40%), Maharashtra (32 %), Odisha (31%).
    - **In terms of production** - Karnataka (106%), Jharkhand (74%), Maharashtra (72 %), Gujarat (60%), Andhra Pradesh (56%), Odisha (51%), Rajasthan (50%), Chhattisgarh (44%).
    - **In terms of productivity** - Karnataka (478 Kg/ha to 601 Kg/ha), Maharashtra (624 Kg/ha to 816 Kg/ha), Gujarat (829 Kg/ha to 1050 Kg/ha), Chhattisgarh (741 Kg/ha to 908 Kg/ha).
- CSS on Accelerated Pulses Production Programme (A3P), National Food Security Mission (NFSM)-Pulses, 60000 Pulses villages under RKVY during 2010-11 and 2011-12 etc could realize its impact.
- Methodology of Cluster approach demonstration, impetus on varietal replacement and quality seed, attractive MSP (Pigeonpea: Rs. 2000/- (2008-09) to Rs. 3850/- (2012-13), Chickpea: Rs. 1730/- (2008-09) to Rs. 3000/- (2012-13) alongwith favorable weather conditions etc, paid the dividends.
- About 28 lakh quintals of certified seed including chickpea were distributed; 39 lakh ha of area was advocated for use of micronutrients; IPM in 23 lakh ha area and 18 lakh ha of area demonstrated under various pulses including chickpea. About 15 lakh farmers were trained under capacity building during 11th Plan.

3. PROJECTED DEMAND AT THE TERMINAL YEAR OF XII PLAN : CHICKPEA & TOTAL PULSES

Million Tonnes

Commodity	**Production**					**Growth %**	**% indirect demand of total demand by 2016-17 @**
	2011-12		**2012-13* (IV Adv.)**	**2013-14* (Target)**	**2016-17 (Demand)**		
	Demand	**Achi. ***					
Chickpea	7.02	7.70	8.88	8.66	8.22	3.47	72.21
Pigeonpea	4.48	2.65	3.07	3.20	5.10	2.86	20.60
Total Pulses	**18.84**	**17.09**	**18.45**	**19.00**	**21.68**	**3.09**	**42.75**

Source- Planning Commission - XII Plan Working Group Report (Demand: behaviouristic approach),
***- Department of Agriculture & Cooperation (DES), GOI**
@- Based on 1998-2008 trend analysis

3.1. CHICKPEA- STATE-WISE PRODUCTION TARGET (2013-14)

Lakh Tonnes

State	Target
Andhra Pradesh	8.40
Bihar	1.80
Chhattisgarh	1.60
Gujarat	2.00
Haryana	1.00
Karnataka	5.60
Madhya Pradesh	27.00
Maharashtra	14.40
Rajasthan	15.00
Uttar Pradesh	7.400
All India	**86.57**

Average Production during XI plan – 72.42 Lakh tones
Source- Department of Agriculture & Cooperation

4. CROP SECTOR PERFORMANCE- AN ANALYSIS

Growth rate as measured by **average of annual rate of change** was 4.33% during 8th Plan and then declined to 2.25 %. The deceleration continued during the tenth Plan (2002-03 to 2006-07).

- Notable change in growth pattern is the moderate effect of severe drought of 2009-10 as compared to previous severe droughts of similar magnitude. This indicates increased resilience of agriculture to weather shock.

- Trend growth rate in productivity during the period from 2000-01 to 2008-09 of major crops shown that the cotton topped the list with more than 10% annual growth followed by Bajra (4%), Groundnut, Soybean & Jowar (3%) and Rice (1.69%), whereas, un-responsive in Pulses (Tur-1.43%, Gram- 0.64%) and Wheat (0.5%).

- Looking to the state-wise growth rate in agriculture NSDP, it is observed that, the action at state level matters a lot in determining the performance of agriculture including pulses, in a particular state. The better performing states like Gujarat (11.5%), Chhattisgarh (6.1%), A.P. (5.2%), Maharashtra (4.7%), Rajasthan (4.3%), Madhya Pradesh (4.1%), achieved high total growth rate (TGR) of more than 4% in agriculture NSDP during 1999-2000 to 2008-09.

- The above performance analysis further suggest that quality FLD, with active involvement of the State Agriculture Department may yield better results in view of large investment for development of pulses under A3P and NFSM in these states.

- There are important lessons from disaggregate growth analysis by "**XII Plan Working Group on Crop Husbandry, Agricultural inputs, Demand & Supply**

Projections". The research policies & strategies need to be adjusted to the new types of technologies, changing demand patterns, up-coming value chains and supermarkets, institutional innovations and globalization and other evolving changes in the system surrounding agriculture.

- As per final estimates during 2011-12 the total area under gram was 8.30 Million ha with 7.70 Million tonnes of production and 828 Kg/ha of yield. The % coverage under irrigation was about 33% and more than 60% of chickpea plantation was under rain fed conditions.

5. PROGRAMMES AND SPECIAL INITIATIVES IN THE SECTOR

SR.NO.	PLAN PERIOD	STATES
	VIII -IX-X Plan	
1.	National Pulses Development Project (NPDP) (1990-91 to 2002-03)	28 + 02 UT
2.	Integrated Scheme of Oilseeds, Pulses, Oilpalm and Maize (ISOPOM)- Pulses (2004-05 - 2006-07)	14
	Eleventh Plan	
1.	Integrated Scheme of Oilseeds, Pulses, Oilpalm and Maize (ISOPOM)- Pulses (2007-08 - 2009-10)	14
2.	National Food Security Mission-Pulses (Rabi, 2007-08 to 2011-12)-*Pulses component of ISOPOM merged with NFSM w.e.f.1.4.2010*	16
3.	Accelerated Pulses Production Programme (A3P) (2010-11 to 2011-12)	16
4.	Special initiatives for pulses and oilseed in dry land areas under RKVY (2010-11)	07
5.	Integrated Development of 60000 Pulses villages in Rainfed Areas under RKVY (2011-12)	11
6.	Macro Management of Agriculture (MMA) (2004-05 onwards)	Other than NFSM states

Twelfth Plan	**States Covered**	**BUDGET ALLOCATION (Rs. Crores)**	
		2012-13	**2013-14**
National Food Security Mission (NFSM)–Pulses	16	808.92	724.40
Accelerated Pulses Production Programme (A3P)	16	326.34	393.00
Special Plan to achieve 19+ million tonnes of Pulses production during Kharif 2012-13	08	55.32	-

5.1. CHICKPEA - RESEARCH PROJECTS UNDER ISOPOM & NFSM

Rs. in Crores

S. No.	Name	Duration	Implementing Agency	Financial Outlay
1.	Development of extra large seeded kabuli chickpea varieties for crop diversification	2006-07 to 2008-09	ICAR	1.30
2.	Seed system in legume development and popularization of Model Seed System for quality seed production of major legumes to ensure seed sufficiency at village level	2006-07 to 2009-10	ICAR	100.00
3.	Exploiting host resistant for Helicoverpa management to increase the production and productivity of chickpea and pigeonpea under rainfed condition in India	2007-08 to 2011-12	ICRISAT	2.54
4.	Enhancing chickpea production in Rainfed Rice Fallow lands (RRFL) of Chhattisgarh and Madhya Pradesh states of India following improved pulses production and protection technologies (IPPPT)	2008-09 to 2011-12	ICRISAT	8.74
5.	Improving Heat Tolerance in Chickpea for enhancing its productivity in warm growing conditions and mitigating impact on climate change	2009-10 to 2012-13	ICRISAT	3.29
6.	Pre-breeding and genetic enhancement in breaking yield barriers in lentil and Kabuli chickpea and lentil through DAC–ICARDA-ICAR collaboration	2010-11 to 2014-15	ICARDA/IIPR	3.14 (2010-11 & 2011-12)
7.	Increasing Chickpea & Pigeonpea production through intensive application of Integrated Pest Management	2010-11 to 2011-12	NCIPM	36.97

5.2. INTERVENTIONS

5.2.1. National Food Security Mission-Pulses

Sr.No.	Head	Interventions
1.	Seed	i. Distribution of certified seed
2.	Demonstrations on Improved Technologies	i. Cluster demonstrations (of 100 ha each) on inter-cropping/improved varieties/farm implements ii. Front Line Demonstrations by ICAR/SAUs in cluster of 10 ha each
3.	Integrated Nutrient Management (INM)	i. Micro-nutrients ii. Lime/Gypsum/80% WG Sulphur iii.Rhizobium culture/PSB/Microriza
4.	Integrated Pest Management (IPM)	i. IPM Package ii. Distribution of NPV iii. Distribution of PP chemicals iv. Weedicides
5.	Resource Conservation Technologies/Tools	i. Knap Sack Sprayers ii. Zero Till Seed Drills iii. Multi Crop Planter iv. Seed Drills v. Zero Till Multi Crop Planters vi. Ridge Furrow Planters vii. Rotavators viii.Laser Land Levelers
6.	Efficient Water Application Tools	i. Distribution of Sprinkler Sets ii. Incentive for Mobile Sprinkler Rain guns iii. Incentive for Pump Sets iv. Pipe for carrying water from source to the field.
7.	Cropping System based trainings	4 Sessions in a crop season @ Rs. 14000/- per training
8.	Miscellaneous Expenses	i. Project Management Team & other miscellaneous expenses at District level ii. Project Management Team & other miscellaneous expenses at District level iii. Miscellaneous expenses to State for other districts (Districts of ISOPOM)
9.	Local Initiatives	Rs. 2 crores per district for the entire Plan Period, where two or more crops of the Mission are implemented. For the districts where only one crop is implemented, the assistance will be limited to Rs. 1 crore.

5.2.2.Accelerated Pulses Production Programme (A3P):

One cluster = 100 ha
@ Rs. 5600/- per ha for Chickpea , @ Rs. 5400/- per ha for Pigeonpea
@ Rs. 4800/- per ha for Urd, Mung, @ Rs. 5000/- per ha for Lentil

Sl.No.	Items	Provision for one ha (Quantity)
1.	Seed Minikit	@ 0.20% area/ha (Pigeonpea, Urdbean & Moongbean @ 4Kg, Lentil @ 8 Kg and Gram @ 16 Kg/ha)
2.	Gypsum	250 Kg
3	Micro Nutrient (Zinc Sulphate, Borax, Ferrus Sulphate)	25 Kg
4.	Rhizobium Culture	Three packets of 200 gm each=600 gm
5.	PSB culture	Three packets of 200 gm each=600 gm
6.	Urea (for foliar spray)	10 Kg
7.	Fungicide for seed treatment	Thirum 2 gm + 1 gm Carbandezim / Kg of seed
8.	Insecticide/Fungicides/Bio-agents (NPV) & Bio-pesticides	Need based chemicals, Bio-agents (NPV), Bio-pesticides, fungicides and Insecticides, Pheromone traps & Lure fit in IPM recommendations of the crop
9.	Weedicides	2.5 liters
10.	e-pest surveillance	

6. VARIETAL FEEDBACK: PERFORMANCE OF MINIKIT & A3P DEMONSTRATION (2010-11)

State	**Variety**		**Ave. Yield (Qtls/ha)**				**Economics (Rs./ha)**		
	Minikit	**A3P Demon.**	**Minikit**	**A3P Demon**	**State**	**National**	**C**	**R**	**NR**
A.P.	JG 11 KAK 2	Annegiri, ICCV 37, ICCV 11, JAKI 9218, KAK 2, JG 11	19.15	14.36	12.33	8.95	20673	50683	30010
Bihar	RSG-963	JG 11	15.11	18.11	11.87	8.95	17753	38041	20288
CG	JG-63, JG-130, PKV Kabuli-2	JG 74, Vaibhav, Vishal Phule, Vijay, JG 11, Jawahar Gram 16, JG 315, Ujjain 21, JG 130 & JG 218	12.73	12.91	9.59	8.95	12505	31552	19047
Gujarat	Gujrat Gram-2, JAKI-9218	Dahod Yellow	11.32	9.40	11.36	8.95	11473	36171	24698
Haryana	HC 5	C 235 & Local	11.75	8.50	9.82	8.95	12750	25700	12950
Jharkhand	RSG-963	Pant G 114 & Deshi Chana	12.55	8.40	10.52	8.95	14325	30090	15765
Karnataka	ICCV-37 JAKI-9218, G-95311	Annigeri 1	8.88	6.66	6.58	8.95	9106	22563	13457
M.P.	JG 130, JAKI 9218, ICCC 37, JG 63, RSG 963, JG 322, JG 16, PKV Kabuli 2	Ujjain 21, Ujjain 24, JG 11, JG 74, JG 315, JG 218, JG 322 & Local	12.93	9.79	8.63	8.95	16660	28157	11497
M.S	JAKI 9218, Digvijay, Vijay, Akash, Kranti , Chaffa	Vijay, Bharati, ICCV 37, Vishal Phule, Digvijay, JAKI 9218, Vishwas, Phule G 12 & Local	16.42	14.41	9.04	8.95	11549	36481	24932

Rajasthan	RSG 888, RSG 963, RSG 895, Pusa 547 & PGC-1	Kiran, RSG 44, GNG 116, GNG 146, Vardan, Samrat, C 235, BG 207 & Local	13.37	12.75	8.98	8.95	16249	29841	13592
Uttar Pradesh	RSG-963, WCG-1, KPG-59, PG-186, PKG-128.	Pusa 256 Avrodhi, Radhey, Jawahar Gram 16, K 850 & Haryana Chana 3	13.09	14.44	9.30	8.95	14347	30017	15670

C= Cost of cultivation, R= Return, NR= Net Return

Source: Department of Agriculture & Cooperation

SUGGESTIONS

- The states which responded effectively during Eleventh plan may be targeted during current plan ,both for research and development activities including value addition and marketing for sustainable production.

- The productivity realized during 2011-12 indicates that the states with high percentage of irrigated chickpea like Madhya Pradesh (49%), Rajasthan (46%) and Maharashtra (24%) have comparatively low productivity of 1081, 740 & 775 Kg/ha respectively. as compared to the states of Bihar (5.6%), U.P. (16.6 %) and Gujarat, (29%), with low irrigation coverage but high productivity at 1295, 1185 and 1138 Kg/ha respectively.

  It may be suggested to undertake an Action Research Project under RKVY in collaboration with the major chickpea states involving varieties, technological package etc.to conclusively recommend gap –filling package contributing high productivity to chickpea in the states of Bihar (5.6%), U.P. (16.6 %) and Gujarat, (29%) with low percentage of irrigated chickpea, as compared to Madhya Pradesh, Rajasthan and Maharashtra with higher area under irrigated chickpea.

- **In view of the inter-cropping** potential of 5 lakh ha (chickpea with barley, mustard and safflower (rainfed upland) in South East Rajasthan, Punjab, Haryana, Bihar, U.P. and Vidarbha region of Maharashtra and 4 lakh ha in rice fallow belts of Eastern U.P, Bihar, Odisha, Jharkhand, Chhattigarh and West Bengal, **Effective FLDs may specifically be targeted to supplement the efforts of on-going pulses development programme.**

- The potential of high yield levels exhibited in chickpea producing states of **A.P** (Prakashan, Kaddappa, Mahboobnagar, Guntur- 1858 Kg/ha), **M.P.** (Tikamgarh, Gwalior, Chindwara and Shivpurkala -1405 Kg/ha), **U.P.** (Jallon, Kanpur Dehat, Etawa and Firozabad -1285 Kg/ha), **Rajasthan** (Udaipur, Baran, Kota, Baswada - 1215 Kg/ha) and **Maharashtra** (Jalgaon, Kolhapur, Nandurbar, Amravati -803 Kg/ha) – may also need to be replicated with the appropriate extension efforts, technology utilizing the schemes on pulses development..

****