YIELD GAP ASSESSMENT OF LENTIL UNDER FRONT LINE DEMONSTRATIONS IN UTTAR PRADESH

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Lentil *(Lens esculenta* L.) is grown in 1.29 m ha area, out of this 90 per cent area covered major states like Uttar Pradesh, Maharashtra and Bihar with production of 0.8 m tonnes and productivity of 624 kg/ha in India, whereas, the crop covered 585.5 thousand ha area with production of 484.6 thousand tonnes and productivity of 828 kg/ha in Uttar Pradesh to achieve the targeted pulses productivity (850 kg/ha for the period 2007-2012). Lentil is also a potential pulse crop for rainfed agro ecosystems and can shared the total pulses production and productivity to a great extent.

METHODOLOGY

KVKs functioning in Zonal Coordination Unit (ICAR), Kanpur have conducted demonstrations in an area of 560.4 ha of lentil with improved varieties during 1997-2000. Twenty KVKs under 8 Agro Climatic Zones (Central Plain, Western Plain, South-Western Semi-Arid, North Eastern Plain, Bundelkhand, Eastern Plain, Bhabar & Tarai and Mid-western Plain) took up the demonstrations in Uttar Pradesh. The KVK wise seven varieties were demonstrated viz., *K 75 and PL 406, PL 234, DPL 15, L 4076, PL 36 and DPL 62 during* rabi season. The yield gap analysis also derived from the production potential of national to state level data.

RESULTS AND DISCUSSION

Zone-wise highest yield performance of lentil cultivars shown as, *PL 234* resulted mean grain yield (17.5 q/ha) at KVK Gonda in North-eastern plain followed by cultivar PL 406 (17.1 q/ha) at same KVK, cultivar *K 75* (16.6 q/ha) at KVK Aligarh in south-western semi arid zone under demonstrated situations over local check. Further, the demonstrated condition lentil yield ranges from 9.8 to 17.5 q/ha and local check yield ranges from 6.6 to 11.6 q/ha at different farmers' conditions (Table 1). On the basis of pooled demonstrated yield analysis of cultivars, the highest grain yield was recorded with cultivars *PL 369* (15.5 q/ha) followed by *DPL 15 and PL 234 each* (15.2 q/ha), *PL 406* (14.1 q/ha) over local check, respectively during the year of 1997-2000. Among the rabi pulses lentil obtained mean yield of 13.8 q/ha, which was 74 per cent higher than the local check (8.1 q/ha). Thus, the yield gap of 570 kg/ha was obtained between demonstrated and local check conditions. The national to state productivity yield gap of 204 kg/ha, yield potential of lentil 1650 kg/ha is higher than the demonstration yield (13.8 q/ha) so this yield gap is to be filled-up by FLDs only as evidenced through.

Table 1 Grain yield production of lentil varieties under FLD during 1997-2000

Varieties	Grain yield (q/ha)		Yield increase %
	Demonstration	Local check	
PL 369	15.5	7.2	115.3
DPL 234	15.2	7.4	105.4
DPL 15	15.2	9.3	63.4
PL 406	14.1	8.7	62.1
DPL 62	13.7	9.5	44.2
K 75	12.8	8.5	50.6
L 4076	10.4	6.1	70.5
Mean	**13.8**	**8.1**	**70.4**

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CONCLUSION

It is concluded that introduction of HYVs and extension agencies can play a significant role to enhance the lentil grain yield. Therefore, yield gap at farmers' end can be bridged by demonstrated scientific practices.

The Reality At Field Level :

- No application of supplemental irrigation at critical stage i.e. flowering and podding
- Poor linkages and support from other agencies/organizations.
- Poor seed replacement of lentil
- Inadequate minimum support price
- Inadequate credit facilities
- Inadequate dissemination of improved technologies
- Lack of awareness and availability of biofertilizers such as rhizobium and PSB, etc.

Feedback

- The farmers demanded suitable bold seeded varieties of lentil
- Seed village concept may also be popularized for rapid seed multiplication and spread of new released varieties towards timely availability of seed to the farmers.

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