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Promotion of Berseem Variety Wardan through Frontline Demonstrations in Unnao District of Uttar Pradesh, India

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A B S T R A C T

Berseem is a major fodder crop of Uttar Pradesh as well as the country and plays a major role in augmenting the income of small and marginal farmers of Unnao district of Uttar Pradesh. One of the major constraints of traditional Berseem cultivation is low productivity due to non-adoption of recommended package of practices and improved varieties. To overcome this anomaly Krishi Vigyan Kendra, Unnao were conducted frontline demonstrations in farmers' fields at different locations in the district with high yielding and no. of cutting variety *Wardan* and applying scientific practices in cultivation through broadcasting method. The Berseem productivity and economic returns under improved technologies were calculated and compared with the prevailing farmers' practice. Results revealed that *Wardan* variety under improved practices recorded higher yield of 17.09%, 19.98% and 25.83% during 2013-14, 2014-15 and 2015-16 and the recommended practice gave higher net returns of Rs 26100, 28500 and 31700 per ha and B:C ratio of 2.16:1, 2.34:1 and 2.60:1, respectively as compared to farmers practice.

Introduction

Berseem (*Trifolium alexandrinum*) is one of the most important winter forage legumes in India, Pakistan, Turkey, Egypt and countries of Mediterranean region. The crop is reported to be highly self-incompatible in its place of origin but in India it is believed to be self fertile. However, in a recent report, the crop has shown wide diversity for self fertility and population with self compatible and self pollinating, self compatible requiring tripping, Self incompatible types with broad genetic base and self incompatible types with narrow genetic base. In India, it occupies 2 M ha. The merit of the crop lies in its multicut nature (4–6 cuts), long duration of green fodder availability (November to April), high green fodder yield (85 t/ha), good forage quality (20% crude protein), and digestibility (up to 65%) and high palatability (Anonyms 2009). The yield components in berseem varieties and number of tillers per square meter were major factors related to fodder yield (Beri and

Sahoo, 1985 and 1986) and as well as the cutting intervals of 20 and 25 days significantly decreased the incidence of root rot disease in berseem fodder and increased the green fodder yield (Munir, 2001). The present study was conducted to promotion of high yielding green fodder and multicut variety of berseem.

Material and Methods

Frontline demonstrations (FLDs) in Berseem were conducted during 2013-14, 2014-15 and 2015-16 by Krishi Vigyan Kendra, Unnao at the farmers' fields in different locations of the district. A total of 30 demonstrations in 6 ha area were conducted in the selected villages. The improved variety Wardan was procured from Indian Grassland and Fodder Research Institute, Jhansi (Uttar Pradesh) for demonstration purpose. In case of local check plots, existing practice of broadcasting was followed by the farmers. The whole package approach demonstrated to farmers through FLD trials included components such as improved variety, broadcasting method sowing, recommended seed rate, seed treatment, weed and water management, fertilizers and plant protection measures (Table 1). In the demonstration plots critical inputs in the form of improved seed of *Wardan* variety and balanced fertilizers were provided to the farmers. The farmers involved in demonstrations were facilitated by KVK scientists in performing proper field operations like; timely sowing, cutting time and disease diagnosis. During this period extension activities like field days, farmers' trainings, diagnostic visits, *etc.* were undertaken which benefitted the farmers. Data on crop yield were recorded by per square meter observation method randomly from 3 to 4 places from an FLD plot. The yield data were collected from both the demonstrations and farmers' fields and analyzed using simple statistical tools. The technology gap, extension gap and technology index (Samui *et al.*, 2000) were calculated using the following equation:

- Technological gap: Potential yield – demonstration yield
- Extension gap: Demonstration yield – yield under farmer practice
- Technology index (%): (Potential yield - demonstration yield/potential yield) X 100

Results and Discussion

The fodder yield of Berseem recorded under demonstration was 597.2, 621.5 and 668.2 q ha^{-1} during 2013-14, 2014-15 and 2015-16, respectively (Table 2). The yield enhancement due to the improved practices was to the tune of 17.09, 19.98 and 25.83 per cent over farmers' practice. Moreover, the number of cutting of fodder under demonstration was recorded 3, 4 and 4 times over the farmers field. Yield enhancement in Berseem and other fodder crops under frontline demonstration has amply been documented by Haque (2000) and Tiwari and Saxena (2001). The Extension gap of 87.2, 103.54 and 137.2 q ha^{-1} was observed during 2013-14, 2014-15 and 2015-16, respectively. The Extension gap emphasized the need to bring awareness among the farmers for adoption of improved varieties and production technologies and to revert the trend of wide extension gap. Results also revealed that the technological gap between the improved technology (Demonstration) and farmers' practice in tune of 102.8, 78.46 and 31.8 q ha^{-1} during 2013-14, 2014-15 and 2015-16, respectively. The technology gap observed may be attributed to difference in soil fertility status and agricultural practices and may be overcome by adopting efficient management practices. The technology index indicates the feasibility of the evolved technology at the farmers' fields. Lower the values of technology index more is the feasibility of the technology demonstrated (Chauhan, 2011).

Table.1 Demonstration and Farmers practices of Berseem under FLD for varietal evaluation

Sl. No.	Technology	Improved practices under flat sowing	Farmers practice	GAP (%)
1	Variety	*Wardan*	Non-descript	100
2	Land preparation	Ploughing, Harrowing and pudling	Ploughing, Harrowing and pudling	50
3	Seed rate	25 kg (Ha)	40 Kg (Ha)	High seed rate
4	Seed treatment	Thiarum	No application	100
5	Sowing method	Broadcasting	Broadcasting	50
7	Fertilizer dose	80-40-20 (N-P-K)	Indiscriminate application	100
8	Plant protection	IPM	Indiscriminate application	100

Table.2 Yield performances of Wardan under demonstration

Years	No. of Demonstrations	Area (ha)	Fodder Yield (q ha^{-1})		Increased %	No of cutting	
			Demo	**Farmer's practice**		**Demonstration**	**Farmer practice**
2013-14	10	2.0	597.20	510	17.09	3	2
2014-15	10	2.0	621.54	518	19.98	4	2
2015-16	10	2.0	668.20	531	25.83	4	3

Table.3 Comparative economics of Berseem fodder cultivation between demonstration and farmers' practice

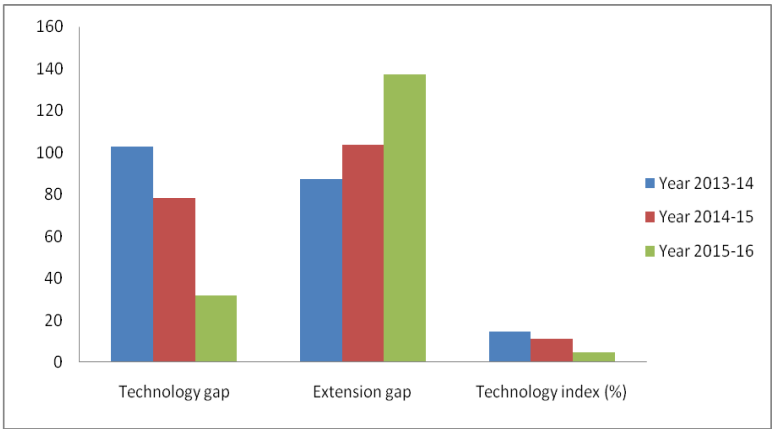
Years	Economics of demonstration (Rs./ha)				Economics of Farmer practice (Rs./ha)			
	Gross Cost	**Gross Return**	**Net Return**	**BCR (R/C)**	**Gross Cost**	**Gross Return**	**Net Return**	**BCR (R/C)**
2013-14	22500	48600	26100	2.16:1	18990	38800	19810	2.04:1
2014-15	21200	49700	28500	2.34:1	19995	41900	21905	2.09:1
2015-16	19500	51250	31750	2.60:1	18265	41560	23295	2.30:1

Table.4 Technology gap, extension gap and technology index in Berseem (var. *Wardan*) under FLDs

Year	Technology gap (q ha^{-1})	Extension gap (q ha^{-1})	Technology index (%)
2013-14	102.80	87.20	14.68
2014-15	78.46	103.54	11.20
2015-16	31.80	137.20	4.54

Mean	**71.02**	**109.31**	**10.14**

Figure.1 Technology gap, extension gap and technology index in Berseem (var. *Wardan*) under various FLDs



The technology index in the present study was 14.68, 11.20 and 4.54 per cent showing the efficacy of good performance of technical interventions. The reduction in the technology index from 14.68 per cent in the first year to 4.54 per cent in the third year exhibited the feasibility of the technology demonstrated (Table 4). The data on economics of the improved technology indicate that the cost of production in FLD was higher than that of the local practice (Table 3).

The input and output prices of the commodities prevailing during the study were taken into account for calculating the net returns and B:C ratio. A higher net return of Rs 26100, 28500 and 31750 per ha was recorded during both the three years as compared to Rs 19810, 21905 and 23295 achieved as net returns in the farmers' practice. The benefit-cost ratio of Berseem fodder cultivation with *wardan* variety under improved cultivation practices was 2.16, 2.34 and 2.60 during both the three years as compared to 2.04, 2.09 and 2.30 under farmers' practice. This may be due to higher yield obtained under improved technologies and proved variety as compared to farmer's practice. The results were agreement with Tiwari and Saxena (2001).

In conclusion the fodder yield potential of Berseem cultivation increased to a great extent by conducting frontline demonstrations of the proven technologies. This substantially increased the income as well as rescue scarcity of green fodder for livestock farming. This method gained a momentum in upscaling the Berseem fodder productivity, which created a positive impact on livestock farming.

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References

Anonyms 2009. Descriptors for Tropical Forage Legume – Egyptian clover/Berseem T*rifolium alexandrinum L.*, IGFRI, Jhansi.

Beri, S.M. and Sohoo, M.S. 1985. Performance of BL-1 variety of Berseem (T*rifolium alexandrinum).*

Journal of Agricultural Research, 22(3): 598-599.

Beri, S.M. and Sohoo, M.S. 1986. Analysis of yield components in berseem, *Journal of Agricultural Research*, 23(4): 244-247.

Munir, A.C. 2001. Cultural control of berseem root rot, *Journal of Agricultural Research*, 39(1): 45-49.

Samui, S.K., Mitra, S., Roy, D.K., Mandal, A.K. and Saha, D. 2000. Evaluation of frontline demonstration on groundnut. *Journal of the Indian Society of Coastal Agricultural Research*, 18(2): 180-183.

Haque, M.S. 2000. Impact of compact block demonstration on increase in productivity of rice. *Maharashtra Journal of Extension Education*, 19(1): 22-27.

Tiwari, K.B. and Saxena, A. 2001. Economic analysis of FLD of oilseeds in Chindwara. *Bharatiya Krishi Anusandhan Patrika*, 16 (3-4): 185-189.

Chauhan, N.M. 2011. Impact and yield fissure inspection of gram through trainings and FLDs by KVK Tapi in Gujarat. *Indian Journal of Agricultural Research and Extension*, 4: 12-15.

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