



Research Article

FARMERS MOBILIZATION FOR ENHANCEMENT OF INCOME THROUGH FODDER SEED PRODUCTION

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Abstract: The fodder is the cheapest source of animal feed and so it necessary to enhance fodder proportion in animal's diet. Berseem or Egyptian clover (*Trifolium alexandrinum*) is an important winter forage legume. Because of its higher growth and fodder yield, the seed of Berseem got huge demand in the market. The cost of cost of quality seed production of berseem seed was analysed in farmers' fields. It was observed that with per hectare total cost of Rs 64.86 thousand, the total returns of Rs 78.17 thousand were received. The net returns per ha was Rs 13.31 thousand and B:C ratio is found as 1.21. The production cost of graded seed was found as Rs 75.63 per kg and had easily marketed at Rs 120 per kg as prevailing market prices were Rs 150-180 per kg. Berseem seed production was highly profitable to farmers. For sustainability of profits of fodder seed producing farmers depended on availability of cost-effective inputs and quality seed, market facility in vicinity, prevention of stray animals.

Keywords: Farmers Mobilization, Income enhancement, Fodder Seed Production, Profitability

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Introduction

Indian economy livestock plays very important role and the production yield per animals is enhanced by production of good quality fodder. The scarcity in animals feed is major factor in the development of livestock production. At present the fodder is in insufficient quantity and quality so the animals are thin and underfed thus produce less meat and milk.

The fodder is the cheapest source of animal feed and so it necessary to enhance fodder proportion in animal's diet. Fodder shortage is the major constraint in the production and development of livestock in India. Year-round availability of fodder in adequate amount and nutritious quality is very necessary for the development of livestock. Availability of quality seed in forage crops to enhance production and productivity is long-felt need. Forage crops in general and range grasses and legumes in particular are shy seed producers. The quality seed production is an important area that needs to be strengthened for vertical growth in cultivated fodder and horizontal growth in grassland and silvopasture sector. A multi-pronged strategic policy and research interventions are required to take care of all aspects of fodder seed production technology, quality, seed standards, certification, distribution and marketing. Projected requirement of fodder seed at current level of cultivated area of 8.47 million hectares has been worked out at replacement ratio of 20%.

Green fodder is an economical source of nutrients for dairy animals. To improve the availability of green fodder from the limited land under fodder cultivation, certain measures need to be taken. Adoption of a systematic, scientific and long-term approach for fodder crops similar to the one being followed for food crops can boost the availability and supply of quality fodder seeds to farmers [1]. Timely introduction of improved fodder varieties in seed multiplication chain is very important for the benefit of dairy farmers. Before introducing new varieties for cultivation & seed production, information on its growth & quality parameters along with fodder & seed yield potential under local agro-climatic conditions is very much needed for selecting the right variety for cultivation [2].

Owing to severe shortages of feed and fodder, livestock population suffers from problem of underfeeding. Ensuring an adequate supply of reasonable quality feed and fodder to livestock is one of the major challenges faced by country where dairying is largely the avocation of poor, especially women [3].

Egyptian clover (*Trifolium alexandrinum*) is one of the most important winter forage legumes in India. The crop is reported to be highly self-compatible in its place of origin but in India it is believed to be self-fertile. In India, it occupies two million hectares. The merit of the crop lies in its multicut nature (4-8 cuts), long duration of green fodder availability (November to April), high green fodder yield (85-95t/ha), good forage quality (20% crude protein), and digestibility (up to 65%) and high palatability.

The crop is very important from the view point of conservation framing and important and imparts sustainability to soil productivity and crop production system as a whole [4]. Because of its higher growth and fodder yield, the seed of Berseem gets huge demand in the market. Its seed is generally sold at Rs 150 - Rs 180 per kg in the market at the time of sowing in Bundelkhand and some regions it is sold even at higher rate depending upon the nearness of sowing time. However, its cost of production is comparatively less in relation to prevailing price. Thus, there is good scope for farmers to get a good margin over the cost in berseem seed production. Due to its importance by livestock-based farmers, the produced seed can be sold locally in same village or nearby villages. In India, large area is sown using poor quality uncertified seed that gives poor forage yield. Usually, farmers do not produce these seed.

The main constraints for seed production are non-availability of irrigation area during April, May and/or preference of one extra cut of fodder during lean period of fodder availability in April. The seeds sold in local market are of poor quality and infested with weeds of Melilotus and Chicory, a discouraging factor for berseem cultivation. Moreover, prevalence of diseases like root rot and stem rot in North West and Central India is a major threat to this crop [5].

Materials and Methods

Keeping in mind, the business opportunity, demand and profitability in production of quality seed of berseem, 105 farmers were guided in Jhansi through training, personal interaction and field visits. Out of those about 10 per cent farmers (11 numbers) have successfully produced and sold the quality seed of berseem in year 2013-14. The technical knowhow was provided to the farmers in growing the quality seed. The berseem varieties that were used for production included warden and Bundel Berseem 3. The fields operations varied from farmer to farmer to some extent on the basis of availability of resources. Opportunity cost of different inputs, machines and labourers was used for calculation of cost of production.

Results and Discussion

Average total cost of cultivation was found as Rs 62329 per ha in production of crop. The total variable cost and total fixed cost was found as Rs 43916.57 per hectare and Rs 12746.16 per hectare respectively. In that, the share of total variable cost was found as 70.46 per cent and fixed cost as 20.45 per cent [Fig-1].

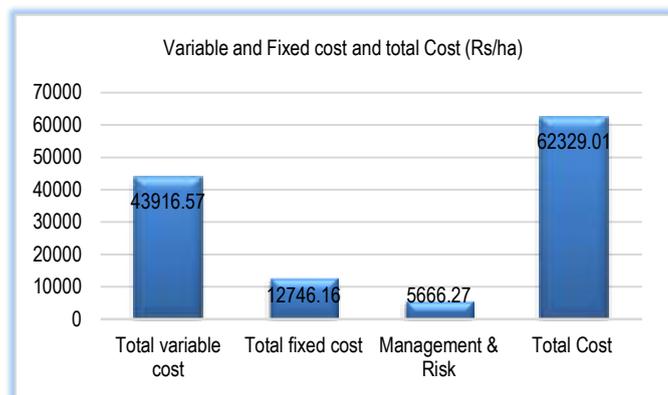


Fig-1 Variable, Fixed and Total cost (Rs/ha)

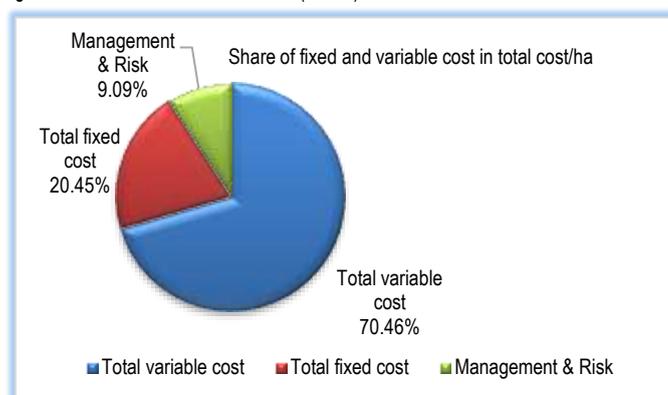


Fig-2 Share of different cost in total cost (%)

Table-1 Input wise cost of cultivation (Per ha basis)

Input wise cost of cultivation	Per ha basis	Percent to total cost
Draft power cost	3218.80	5.16
Labour power		
Total mandays	147.75	
Total Labour cost	23640.24	37.93
Seed cost	2436.36	3.91
Manures and Fertilizers	6148.05	9.86
Irrigation cost	7167.62	11.50
Other cost	26.36	0.04
Total Working capital	42637.45	68.41
Total variable cost	43916.57	70.46
Total fixed cost	12746.16	20.45
Total Cost	62329.01	100.00

Employment generation and economics for different inputs used in production is presented in [Table-1]. A total of 147.75 mandays of labourers were employed in different operations which was found as 37.93 per cent of the total cost. The expenditure on inputs of irrigation and manures and fertilizers was 11.50 per cent

and 9.86 per cent respectively. The highest expenditure of Rs 23640.24 per hectare was found on labour cost followed by irrigation and manure and fertilizers [Table-1] and [Fig-3].

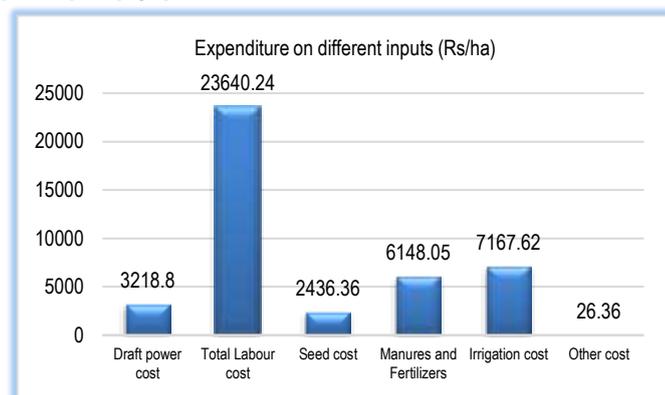


Fig-3 Expenditure on different inputs (Rs/ha)

On per ha basis, the average ungraded seed production was 417.27 kg. The average price of ungraded seed was found as Rs 49.43 per kg. It was calculated by deducting the estimated value of by products as green fodder (Rs 34861.00) and dry fodder (Rs 7057.96) from the total cost (Rs 62329.01) and divided by quantity of ungraded seed produced. The value of ungraded seed was found as Rs 20624.16. The total green fodder produced from crop cutting was 491 qtls/ha and dry fodder produced from threshing of seed was 23.53 qtls. The value of unchopped green fodder is estimated at Rs 71/qtls which was cost of production of berseem green fodder in locality. The price of leguminous dry fodder was estimated at Rs 300/qtl it was the rate at which the dry fodder was sold by farmers in season.

[Table-2] presents the net returns and Benefit Cost ratio analysis. The total return from sale/estimation of different products and by products as green fodder, dry fodder, quality seed, waste seed, nodes and other straw was found as Rs 78.17 thousand per ha and the total cost of cultivation and processing was Rs 64.86 thousand per ha. The net return was found as Rs 13.31 thousand per ha and B:C ratio (on total cost basis) was found 1.21 and B:C ratio with variable cost only is found as 1.80.

Table-2 Net return, Benefit cost ratio analysis and cost of production per kg of seed

Particulars	Per ha basis
Total return from seed production, Rs	78172.04
Total cost of seed production, Rs	64858.10
Net return, Rs	13313.94
B:C ratio on total cost basis	1.21
B:C ratio on variable cost basis	1.80
Cost of quality seed production (Rs/kg)	75.63

Cost of production of quality seed was calculated when the farmer was able to sell/utilised both main product as seed and by products (green fodder, dry fodder and others) Cost of quality seed production when both main and by products (green and dry fodder and waste seed etc) were sold/estimated was found to be Rs 75.63 per kg of berseem seed. The price of quality berseem seed with 10 per cent margin would be Rs 83.19 per kg. It was the situation, when the seed was sold instantly in village. When the seed had to be stored for about five to six months till sept-oct, margin may be kept as 15 per cent (10 per cent profit and 5 per cent for store charges) the price of berseem seed would be then Rs 86.97 per kg. When the farmer had to borne the transportation and packing, the margin over the cost was kept as 20 per cent. In that situation, the price of berseem seed would be kept as Rs 90.76 per kg of pure seed [Table-2].

The by-products as green fodder/dry fodder or waste seeds could be utilized for domestic livestock or could be sold in market. The price of quality Berseem seed varied in the market from Rs150 per kg to Rs180 per kg, the farmers could take the advantage of high price during the sowing season, so they were advised to sell the seed during the sowing season.

Conclusion

As most of the fodder crops are harvested for fodder only and every year, the seed is purchased from the market.

Thus, the fodder seed gets the regular demand in the rural areas. In cost analysis also, it was clear that by producing the fodder seed of berseem, the farmers received higher income. It was observed that with per hectare total cost of Rs 64.86 thousand, the total returns of Rs 78.17 thousand were received. The net returns per ha was Rs 13.31 thousand and B:C ratio is found as 1.21. The production cost of graded seed was found as Rs 75.63 per kg and had easily marketed at Rs 120 per kg as prevailing market prices were Rs 150-180 per kg. Berseem seed production was highly profitable to farmers [6].

Application of research: There are good possibility of having higher profits in fodder seed production and satisfaction of demand of quality seed at affordable cost in vicinity of farmers. For sustainability of profits of farmers depended on availability of cost-effective inputs and quality seed, market facility in vicinity, prevention of stray animals.

Research Category: Fodder seed Production, Economics

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Institute: ICAR- Indian Grassland and Fodder Research Institute, Jhansi, 284003

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Author statement: Author read, reviewed, agreed and approved the final manuscript. Note-Author agreed that- Written informed consent was obtained from all participants prior to publish / enrolment

Study area / Sample Collection: Guided 105 farmers, Adoption of seed production by 11 farmers

Cultivar / Variety / Breed name: Wardan and Bundel Berseem 3

Conflict of Interest: No conflict

Ethical approval: This article does not contain any studies with human participants or animals performed by any of the authors.

Ethical Committee Approval Number: Nil

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