

Impact of improved technology of oat fodder production on farmers' income

Vikas Kumar¹, Khem Chand² and Harish C Pandey³

Indian Grassland and Fodder Research Institute, Jhansi-284003, Uttar Pradesh, India.

¹Agricultural Economics, IGFRI, Jhansi,

²Div of Social Sciences, IGFRI, Jhansi, 3- Technical Officer, IGFRI, Jhansi

vyadav21@gmail.com

Abstract

The economics of oat (cv. JHO -822) fodder production under improved package of practices was made over the farmers fields and analysed for the period Rabi 2010-11 in Muzaffarnagar, U.P. The technical knowhow was provided by the institute in growing the higher yield of oat fodder. For oat (JHO 822), the average total cost was found as ₹ 28201.4 per hectare. The average total working capital is found as ₹ 19385.3 per hectare. The total variable cost is found as ₹ 19966.9. The total fixed cost is found as ₹ 5670.76 per hectare. The share of variable cost in total cost is 70.80 percent. Thus the highest expenditure in percentage term is incurred on labour followed by manures and fertilizers and seed cost and draft power. The total expenses have increased by 13.6% in growing of oat (JHO-822) fodder crop with improved practices against the existing oat varieties. There is higher use of machine and labour mandays as the crop has given two cuttings in most of the fields. The green fodder yield was 18.68% higher and the cost of fodder produced reduced by 4.36 percent.

Keywords: Oat Fodder production, Cost of cultivation, Benefit- cost ratio, Impact analysis

Oat is very important crop of winter season and can be grown successfully in all regions in which the temperature range in winter is 15- 30 degree centigrade. It is highly palatable and high yielding fodder crop (Mukherjee and Maiti, 2009). It is also a very suitable crop for the farmers whose Kharif crop stays longer in the field or the farmers have to take crop in Zaid season in March. Thus, the farmers of oat growing regions grow the oat crop in their fields to provide non-leguminous fodder to the livestock.

Materials and Methods

In the current research work, the, a comparative economics is analysed for traditional fodder

technology of growing oat fodder crop in relation of improved package of practices provided by IGFRI, Jhansi of growing oat in Muzaffarnagar district of U.P. in 2010-11. For the study of economics of improved fodder technology of oat, 27 farmers had were selected who have purchased oat (JHO-822) from farmers groups in Muzaffarnagar and 10 farmers were selected to study the traditional practices of oat fodder production in the same locality in the year 2010-11. In traditional practices, farmers had purchased oat from the markets and in improved package of practices, the farmers had received seed from IGFRI, Jhansi through farmers groups (Kumar, V. (2009).

The technical knowhow was provided by the institute in growing the higher yield of oat fodder crop. The crop fields were also monitored to guide the farmers and provided on farm support. The cost of production analysis of Oat was done at IGFRJ Jhansi. The fields were prepared by pre-sowing irrigation followed by harrowing/ cultivator and then sowing of seed by seed drill or broadcasting method. The fields operations were varied from farmer to farm to some extent on the basis of availability of resources.

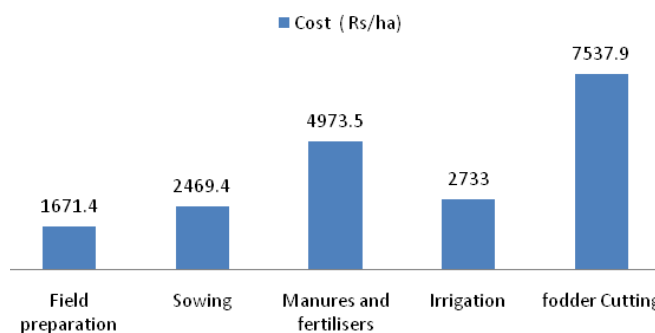
In improved package of practices, the seed rate was suggested as 100 kg per hectare and 100 kg DAP was suggested to apply as basal dose and 100 kg Urea was suggested to farmers (Agarwal, R.K, 2009). However, the used quantity of fertilizers was varied from farmer to farmer. Irrigation was provided through canal or electric motors mostly 5 HP as and when required. The variable cost and fixed cost were calculated for different machines used and multiplied with hours for which they used to find the expenditures incurred on them. The labour rate was taken as ₹ 150 per manday of 8 hours.

Table 1. Operation wise cost expenses on per hectare

Operation	Cost (₹/ha)	Percentage to total cost
Field preparation	1671.4	5.9
Sowing	2469.4	8.8
Manures and fertilisers	4973.5	17.6
Irrigation	2733	9.7
fodder Cutting	7537.9	26.7
Total Working capital	19385.3	68.7
Interest on WC	581.561	2.1
Total variable cost	19966.9	70.8
Total fixed cost	5670.76	20.1
TVC+TFC	25637.7	90.9
Management and Risk	2563.7	9.1
Total Cost	28201.4	100.0

Results and Discussion

First cost of production is calculated over individual farms then the data are converted into per hectare basis and presented in Table 1 and shown in Figure 1. Table 1 shows the operation wise expenditure for the crop. The average expenditure incurred on field preparation is ₹ 1671.4 per hectare that comes to 5.9% of total cost. The average expenditure made on sowing is ₹ 2469.4 which is 8.8% of total cost. The average expenditure per hectare made on manures and fertilizers is ₹ 4973.5 that comes to 17.6% of total cost. The average cost incurred on irrigation is ₹ 2733 per hectare. The average expenditure made on fodder cutting is ₹ 7537.9 per hectare. The average total working capital is found as ₹ 19385.3 per hectare (Fig. 1). The average interest on working capital is ₹ 581.56. The total variable cost is found as ₹ 19966.9. The total fixed cost is found as ₹ 5670.76 per hectare. The share of variable cost in total cost is 70.80 percent. The average total cost is found as ₹ 28201.4 per hectare.



Item wise cost of cultivation on per hectare basis is presented in Table 2 which shows the average draft power used per hectare is 4.4 hours. The variable cost incurred on draft power is ₹ 1523.0 per hectare. The average total labour mandays used per hectare are 67.4. The average total expenditure incurred on labour is ₹ 10117.5. The expenditure incurred on seed purchase is ₹ 2200.9 per hectare. The total expenditure incurred on manures and fertilizers is ₹ 4821.4 per hectare. The average total expenditure

on tube well is ₹ 722.7 per hectare. Thus the highest expenditure in percentage term is incurred on labour followed by manures and fertilizers and seed cost and draft power.

Table 2: Item wise cost distribution on per hectare basis

Item wise cost of cultivation	
Particulars	per hectare basis
Draft power	
Draft power hours	4.4
Draft power cost, ₹	1523.0
Labour power	
Total mandays, Nos.	67.4
Total Labour cost, ₹	10117.5
Seed cost, ₹	2200.9
Manures and Fertilizers, ₹	4821.4
Irrigation	
Tubewell hours	46.9
Tubewell cost, ₹	722.7
Total Working capital, ₹	19385.4
Interest on WC, ₹	581.6
Total variable cost, ₹	19967.0
Other overhead cost, ₹	670.8
Rental value of land, ₹	5000.0
Total fixed cost, ₹	5670.8
TVC+ TFC, ₹	25637.7
Management & risk, ₹	2563.8
Total Cost, ₹	28201.5

Table 3. Cost and Return and B: C ratio at farm level (₹ per hectare basis)

Return Analysis	
Particulars	₹ /ha
Total cost of fodder production, ₹	28201.4
Green fodder, kg	47592.5
Rate (₹ /kg)	1
Gross return, ₹	47592.5
Net return, ₹	19391.1
B:C ratio	1.69
Cost of production of fodder, ₹/kg	0.59

The comparative cost and return analysis is shown in Table 3. Table 3 shows that on per hectare basis the average green fodder production was 47592.5 kg (475.93 quintal). The average rate of green fodder is assumed as ₹ 100 per quintal. The total value of green fodder has been found as ₹ 47592.5. The net return after deducting the cost is found as ₹ 19391.1 per hectare. The average benefit cost ratio is found as 1.69:1.

Table 4: Impact of Improved fodder production technology over Traditional oat fodder production technology

Particulars	% change over the existing crop variety
Total expenses,	13.6
Machine use, hours	7.23
Labour, mandays used	29.04
Total green fodder yield	18.68
Total income generated	18.68
Net income generated	26.95
Green fodder (₹ /kg)	-4.36

Table 4 shows that the impact of improved fodder technology of oat fodder production over the traditional practices of oat fodder production by the farmers. Here to find the impact of forage crops on socio-economic development of farmers, some parameters were selected that can analyze the improvement in income, employment of labour and machines, green fodder yield, net income to farmers and cost reduction in production of fodder. The table 4 shows the percentage change made due to the use of IGFR varieties against the traditional/existing varieties of the fodder crops. The positive sign shows that IGFR variety had higher value and negative sign shows that IGFR variety has lesser value against the existing varieties of concerned fodder crop grown by the farmers. Impact of oat (JHO-822) fodder crop was studied in relation to the existing fodder crop of oat grown by the farmers in Muzaffarnagar (U.P). The total expenses have increased by 13.6% in growing of oat (JHO-822) fodder crop against the existing oat varieties (Table 4 and Fig 2). There is higher use of

machine and labour mandays as the crop has given two cuttings in most of the fields. The green fodder yield was 18.68% higher and the cost of fodder produced reduced by 4.36%.

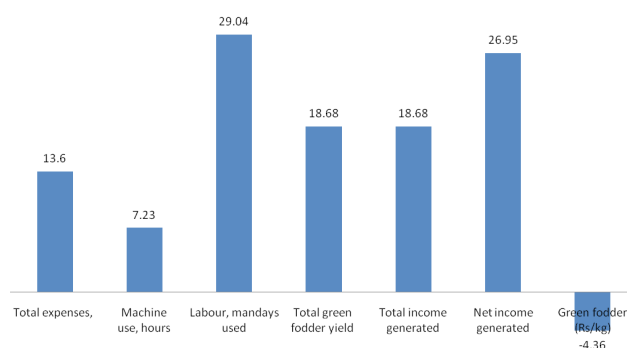


Fig. 2. Impact of improved technology of oat fodder production over the existing oat fodder production technology

Acknowledgements

Authors are grateful to the Head of Social Sciences Division and Director, IGfRI for providing necessary research facilities for this study.

References

- Kumar, V. 2009. An Economic Analysis of Cost of Production of Paddy In Different Farm Size Groups, *Plant Archives* 9(1): 197-198
- Mukherjee and Maiti 2009. Oat. Forage Crops, Production and Conservation, Kalyani Publication, 79-85
- Agarwal, R.K.; Tripathi S.N and Dixit, A.K. 2009. Seed production technology of cultivated forage crops. Seed production technology and quality control standards in fodder crops. IGfRI, 69-75.