Economic Analysis of Different Herbicidal Weed Management on Ragi(*Eleusinecoracana*L.)

Comment [A1]: It is preferable to remove the scientific name from the title and include it only in keywords

ABSTRACTS

Comment [A2]: Include general objective at the beginning, Experimental design used, treatments (quantity and its repetitions), parameters evaluated, analyzes used and the most important results.

The present experiment was carried on the performance of ragi at the Instructional cum Research Farm, Indira Gandhi Krishi Vishwavidyalaya, Raipur, Chhattisgarh during *Kharif* seasons 2021 and 2022The field experiment was laid out of ragi (Indira ragi 1) was growing variety for test crop in Randomized block design (RBD) with 10 treatment and 3 replications. The crop was sown manually on seedcum fertilizers 1 July 2021and 2 July 2022 after the onset of monsoon. The result of the experiment revealed that, different weed management practices on economics ofdifferent herbicide application of ragi reveals that T_9:Green manuring up to 40 DAS required highest cost of cultivation than hand weeding twice 20 and 40 DAS and lowest cost of cultivation in control. Gross return,net return and B:C ratio was significantly higher under(T_5) Pyrazosulfuron ethyl 10 % 20 g/ha (PE) *fb* Chlorimuronethyl 10 % + Metsulfuron methyl 10 % 4 g/ha (PoE) while minimum was recorded under T_{10}: control during both years and on mean value.

Key words:Ragi, Chemicals, Net returns, Gross returns and B: C.

Comment [A3]: Include scientific name

INTRODUCTION

Comment [A4]: Use citations not older than 10 years.

Include results of other previous studies, in addition the general objective is not observed at the end of the introduction

Millets are highly nutritious, non-glutinous and non-acid forming foods. Millets are two types: major millets and minor millets. Major millets are maize, bajra, sorghum, and minor millets are Kodo, Kutki, Ragi. Finger millet also known as ragi or mandua, valued as staple food and first important crop among small millets. Finger millet is believed to have originated in African highlands of Uganda and Ethiopia (Seetharam, 1997), around 3,000 years BC and spread to India around 3,000 year ago.Millets are staple food in the developing world, especially in the drylands of Africa and Asia. Most of the millets are indigenous to Africa and later domesticated to

other parts of the world. Globally, millets are cultivated in 93 countries and only 7 countries have more than 1 M ha acreage of millets. In general, more than 97% of millets production and consumption is by developing nations.India is the largest producer of millets with 37.5% of the total global output followed by Sudan and Nigeria (Meena*et al*. 2021). India is considered as a secondary centre of genetic diversity. Studies indicated that finger millet originated from its nearest wild relative *Eleusineafricana*through selection and domestication (Gowda, 1997).

MATERIALS AND METHODS

Experimental site:-The experimental site was located at the Instructional cum Research Farm, College of Agriculture, I.G.K.V. Raipur (C.G.). The experiment has been conducted in randomized block design with three replications. The treatments were*viz*T_1**:**Pyrazosulfuron ethyl 10% 20 g/ha (PE),T_2:Chlorimuron ethyl 10% + Metsulfuron methyl 10 % 4 g/ha (PoE), T_3:Metsulfuron methyl 20% 4 g/ha (PoE),T_4: Carfentrazone ethyl 40% 12.5 g / ha. (PoE), T_5:Pyrazosulfuron ethyl 10%20 g/ha (PE) *fb*Chlorimuron ethyl 10% +Metsulfuronmethyl10% 4 g/ha (PoE), T_6:Pyrazosulfuron ethyl10% 20 g/ha (PE) *fb*Metsulfuron methyl 20% 4 g/ha (PoE),T_7:Pyrazosulfuron ethyl10% 20 g/ha (PE) *fb*Carfentrazone 40% 12.5 g / ha. (PoE), T_8**:**Hand weeding twice 20 and 40 DAS,T_9**:**Green manuring up to 40 DAS andT_{10}**:**Control.

RESULT AND DISCUSSION

The result of the experiment revealed that, different weed management practices on economics of different herbicide application of ragi reveals that $T_{9:}$ Green manuring up to 40 DASmaximum cost of cultivation (Mean *viz.*, 39676Rs. ha^{-1}), the gross return emphasized that among the different herbicide weed management the maximum gross return, net return, B:C ratio was recorded under T_5: Pyrazosulfuron ethyl 10 % 20 g/ha (PE) *fb* Chlorimuron ethyl 10 % + Metsulfuron methyl 10 % 4 g/ha (PoE) (Mean *viz.*, 94573, 68950Rs. ha^{-1} and 3.69). Similar result were also reported by (Tuti*et al.*2016) and found that the highest benefit: cost ratio (1.39) was recorded in manual weeding at 20 DAS. Higher cost of cultivation in weed free plots and two manual weeding was cost effective due to engagement of more labourers for weeding. Herbicides are economical and cost effective in managing weeds during

Comment [A5]: Include geographic coordinates

More procedurally describe the experiment setup process so that readers can replicate the experiment

parameters evaluated?

used statistical analysis and software?

Comment [A6]: Update references used.
Improve reference format
Improve considering material and methods

initial stages as compared to hand weeding. This indicated that use of herbicides prevented weed emergence from initial stages and consequently increased the yield over hand weeding. This increased yield provided higher monetary returns, similarly when compared to unweeded control, considering the gross returns and cost of weed management practices, the benefit accrued due to weed management was considerably higher similar observations were made by(Kumara *et al.* 2007).

CONCLUSION:

Pyrazosulfuron ethyl 10 % 20 g/ha (PE) *fb*Chlorimuron ethyl 10 % + Metsulfuron methyl 10 % 4 g/ha (PoE) recorded significantly highest gross return (94573Rsha^{-1}), net return (68950Rs ha^{-1}) and B: C ratio (3:69) in ragi mean basis.

Table:1 Economics of Ragi as Influenced by Different Weed Management Practices

Treatments	Cost of cultivation			Gross Income (Rs.)			Net Income (Rs.)			B:C Ratio		
	2021	2022	Mean	2021	2022	Mean	2021	2022	Mean	2021	2022	Mean
T_1: Pyrazosulfuron ethyl 10 % 20 g/ha (PE)	24446	24446	24446	57670	62105	59888	33224	37659	35442	2.36	2.54	2.45
T_2 :Chlorimuron ethyl 10 % + Metsulfuron methyl 10 % 4 g/ha (PoE)	24053	24053	24053	74542	80123	77332	50489	56070	53279	3.10	3.33	3.22
T_3: Metsulfuron methyl 20 % 4 g/ha (PoE)	23836	23836	23836	71026	76291	73658	47190	52455	49822	2.98	3.20	3.09
T_4: Carfentrazone ethyl 40 % 12.5 g / ha. PoE	23978	23978	23978	64777	69503	67140	40799	45525	43162	2.70	2.90	2.80
T_5: Pyrazosulfuron ethyl 10 % 20 g/ha (PE) *fb* Chlorimuron ethyl 10 % + Metsulfuron methyl 10 % 4 g/ha (PoE)	25623	25623	25623	91126	98020	94573	65503	72397	68950	3.56	3.83	3.69
T_6: Pyrazosulfuron ethyl 10 % 20 g/ha (PE) *fb* Metsulfuron methyl 20% 4 g/ha (PoE)	25406	25406	25406	80727	86820	83774	55321	61414	58368	3.18	3.42	3.30
T_7: Pyrazosulfuron ethyl 20 g/ha (PE)*fb* Carfentrazone 40% 12.5 g / ha. (PoE)	25548	25548	25548	78695	84524	81609	53147	58976	56061	3.08	3.31	3.19
T_8: Hand weeding twice 20 and 40 DAS	34876	34876	34876	87513	94616	91065	52637	59740	56189	2.51	2.71	2.61
T_9: Green manuring up to 40 DAS	39676	39676	39676	63826	68555	66190	24150	28879	26514	1.61	1.73	1.67
T_{10}: Control	22876	22876	22876	17779	19267	18523	-5097	-3609	-4353	0.78	0.84	0.81

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