E-ISSN: 2618-0618
P-ISSN: 2618-060X

www.agronomyjournals.com
2025; SP-8(1): 448-452
Received: 07-11-2024
Accepted: 13-12-2024

L Nayak
Assistant Professor (Agronomy), College of Horticulture, OUAT, Chiplima, Sambalpur, Odisha, India

BB Dalei
Seed Research Officer, Seed Research Farm, OUAT, Gambharipalii, Bargarh, Odisha, India

K Pradhan
Former Associate Director of Research, Regional Research and Technology Transfer Station (OUAT), Semiliguda, P. B. No-10, Sunabeda, Koraput, Odisha, India

SK Biswasi
Nodal officer and Technical officer, Regional Research and Technology Transfer Sub Station (OUAT), Kirei, Sundergarh, Odisha, India

P Acharya
Former Farm Superintendent, Regional Research and Technology Transfer Station (OUAT), Semiliguda, P. B. No-10, Sunabeda, Koraput, Odisha, India

Corresponding Author:
L Nayak
Assistant Professor, (Agronomy), College of Horticulture, OUAT, Chiplima, Sambalpur, Odisha, India

Weed management in direct seeded finger millet [*Eleusine coracana* (L.) Gaertn.] under rainfed condition of Odisha

L Nayak, BB Dalei, K Pradhan, SK Biswasi and P Acharya

DOI: https://doi.org/10.33545/2618060X.2025.v8.i1Sg.2457

Abstract
The field experiment was carried out at Regional Research and Technology Transfer Station (OUAT), Semiliguda, Koraput under Eastern Ghat High Land zone of Odisha, India in acidic sandy loam soil during three consecutive *kharif* seasons from 2017 to 2019 with an objective to study the efficacy of weed management practices in finger millet [*Eleusine coracana* (L.) Gaertn.]. The experiment comprised of nine treatments and laid out in randomized block design with replicated thrice. During all the three years of investigation lower weed density, weed dry weight and higher weed control efficiency (WCE) were noticed with hand weeding twice at 21 and 42 DAS followed by pre-emergence application of oxyfluorfen @ 37.5 g/ha + one hand weeding at 21 DAS, pendimethalin @ 750 gm/ha + hand weeding at 21 DAS and pretilachlor @ 500 g/ha + hand weeding at 21 DAS. Significantly highest grain yield 3379 kg/ha was reported with hand weeding twice at 21 and 42 DAS with net monetary return ₹5036/- comparable with oxyfluorfen @ 37.5 g/ha + one hand weeding DAS and pendimethalin @ 750 g/ha + hand weeding at 21 DAS. However, oxyfluorfen @ 37.5 g/ha + one hand weeding at 21 DAS recorded grain yield of 3307 kg/ha with highest net monetary return ₹36308/- and B:C ratio 1.84.

Keywords: Weed management, WCE, weed index, yield, economics

Introduction
Finger millet [*Eleusine coracana* (L.) Gaertn.] ranks third in importance among millets in the country after sorghum and pearl millet. It is commonly called *mandia* in local *Odia* language and one of the major staple foods of farming communities of Eastern Ghat High Land zone of Odisha. Cultivation in India extends from sea-level to 2000 meter above mean sea level and often grown in diverse soils, climates and environment (Revathi *et al* 2024) [17]. It has a short growing season with great natural biodiversity requiring very little input.

Finger millet is really the power house of health benefit nutrients. It contains 40 times more calcium than maize and rice and 10 times more than other cereals. Calcium is important in the development of strong bone. It helps to fight degenerative diseases and also works as an anti-ageing agent. It is beneficial for people who suffer from anemia which helps to raise hemoglobin levels in blood. Apart from human consumption, straw is also used as fodder for cattle and green straw is suitable for making silage.

In India it is grown in an area of 1.00 million ha with a production of 1.76 million tonnes and productivity of 1747 kg/ha (Indiastat. 2022-23. www.indiastat.com) [9]. In the state of Odisha it covers an area of 116.85 thousand ha with a production of 128.73 thousand tonnes and productivity of 1102 kg/ha (5 Decades of Odisha agriculture statistics, 2020) [4]. The average productivity of finger millet under upland condition in Odisha is very low as compared to national level. One of the major production constraints for such low yield as compared to national level is competition from weeds. In spite of control efforts, weeds are recognized as the most biotic constraints to crop production in general and to finger millet in particular under upland situation (Kujur *et al* 2018) [8]. Weed management in finger millet is one of the most expensive farming activity faced by farmers. In Odisha farmers predominantly rely on hand weeding which is time consuming, costly, tedius and depend on availability of labour (Ramadevi

et al 2021) [16]. The adverse effect of weed on the economy of finger millet production may be exacted through labour demand-supply gap leading to timely weed control intervention and consequently low crop yield (Afsari *et al* 2016) [1]. The labour demand supply gap is also one of the main reasons for reduction of total area under finger millet production. Hence, this investigation was planned with an objective to find out the most suitable weed management practice for controlling weeds in finger millet.

Materials and Methods

The field experiment was conducted at Regional Research and Technology Transfer Station (OUAT), Semiliguda, Koraput under Eastern Ghat High Land zone of Odisha during *kharif* seasons of 2017, 2018 & 2019. The farm is located in the geographical parallels of $18^0$42'N latitude, $82^0$30'E longitude and an altitude of 884 meter above mean sea level. The region is marked by its wet and humid climate with an average annual rainfall of 1521 mm most of which is received from mid-June to mid-October. The soil of experimental site was characterized as sandy loam in texture with pH 3.9 (acidic), low in both organic carbon (0.11%) & N (248 kg/ha) and high in both P (48 kg/ha) & K (519 kg/ha). The experiment was laid out in randomized block design with three replications consisting of nine treatments *viz*. Oxyfluorfen @ 37.5 g/ha at 3 DAS, Pendimethalin @ 750 g/ha at 3 DAS, Oxyfluorfen @ 37.5 g/ha at 3 DAS + Bispyribac sodium @ 20 g/ha at 21 DAS, Pendimethalin @ 750 g/ha at 3 DAS + Bispyribac sodium @ 20 g/ha, Oxyfluorfen @ 37.5 g/ha at 3 DAS + Hand weeding at 21 DAS, Pendimethalin @ 750 g/ha at 3 DAS + Hand weeding at 21 DAS, Pretilachlor @ 500 g/ha + Hand weeding at 21 DAS, Hand weeding at 21 & 42 DAS and Control. Finger millet variety "Bhairabi" was sown with seed rate of 10 kg/ha, spacing 22.5cm x 10cm and fertilizer dose of 60:30:30 NPK kg/ha. The weed density and dry matter accumulation were recorded from 4 random quadrate of 0.5 m × 0.5 m in each plot at 30 DAS, 60 DAS and at harvest. The samples were first sun dried then kept in oven at 65ºC for 72 hours and biomass was recorded. Weed control efficiency (WCE) and Weed index (WI) were worked out by using formula suggested by Mani *et al.* (1973) [10] and Gill and Vijay Kumar (1969) [2] respectively.

$$WCE = \frac{DWC - DWT}{DWC} \times 100$$

Where, DWC= Dry weight of weeds in unweeded control plot
DWT= Dry weight of weeds in treatment plot

The weed index was derived as

$$WI = \frac{X - Y}{X} \times 100$$

Where, X= Yield from hand weeded plot
Y= Yield from weed treated plot

The data collected were subjected to statistical analyses in the randomized complete block design following the method of Gomez and Gomez (1984) [3]. The data pertaining to weed density and weed dry weight showed high variation and were subjected to square root transformation $\sqrt{(X + 0.5)}$ and analyzed statistically.

Results and Discussion

The predominant weed flora of the experimental plots consisted of *Echinochloa colona*, *Dactyloctenium aegyptium*, *Digitaria Marginata* among grasses, *Cyperous rotundus* among sedges and *Alternanthera sessilis*, *Hedyotis verticillata*, *Commelina benghalensis* were among broad leaf weeds. Such dominance of weed flora were reported by Pandey *et al.* (2018) [11] and Kumara *et al.* (2007) [7]. Among the different weed flora observed in the plots, the predominant weeds *Alternanthera sessilis* and *Hedyotis verticillata* which was probably be attributed to the ecological adaptation of red soil of the region.

Weed density and dry weight

During the early stages of crop growth, a substantial weed infestation was observed. Different weed management techniques, either by alone or in conjunction with hand weeding, significantly lowered the weed density and dry weight at 30 DAS, 60 DAS, and harvest in comparison to the unweeded control for all three years (Table.1). Hand weeding at 21 and 42 DAS significantly reduced the weed density and dry weight than control plot and caused 88.4% reduction in mean dry weight of weeds in comparison to season long weed competition. At 30 DAS, the lowest weed density (4.53 no/m^2) and weed dry weight (2.19 g/m^2) were recorded in the treatment having oxyfluorfen @ 37.5 g/ha + one hand weeding at 21 DAS followed by the treatment having hand weeding twice at 21 and 42 DAS with weed density and dry weight of 4.70 no/m^2, 2.16 g/m^2 respectively and inhibited the growth of grasses, sedges and broad leaf weeds at early stages. At 60 DAS & harvest, reverse trend was recorded between the treatment oxyfluorfen @ 37.5 g/ha + one hand weeding at 21 DAS and hand weeding twice at 21 and 42 DAS which was at par with the treatment pendimethalin @ 750g/ha + hand weeding at 21 DAS and pretilachlor @ 500g/ha + hand weeding at 21 DAS. It might be due to control of dominant weeds during early growth stage by pre-emergence application of oxyfluorfen + hand weeding at 21 DAS. Further, crop covers the soil surface and smothers the growth of weeds resulted in least number of weeds at later stage of crop. These findings are corroborated with the results of Vinothini *et al.* (2017) [21] and Tuti *et al.* (2016) [20] in rain fed finger millet.

Weed control efficiency and weed index

Weed Control Efficiency (WCE) was found highest between 0-30 DAS, then sharply decreased between 30-60 DAS and there after linearly decreased towards harvest during all the three years of investigation (Table.1). Higher WCE during initial growth stages appears to be due to higher herbicide efficacy, lower weed population and weed dry weight. During all the three years of experiment, the highest WCE at 30 DAS, 60 DAS and harvest (90.8%, 89.9%, and 84.6%) respectively were reported under hand weeding twice at 21 and 42 DAS followed by pre-emergence application of oxyfluorfen @ 37.5 g/ha + hand weeding at 21 DAS with WCE (90.4%, 82.8% and 79.3%) respectively which were at par with pendimethalin @750g/ha + hand weeding at 21 DAS and pretilachlor @ 500g/ha + hand weeding at 21 DAS. Weed index indicates the efficiency of a particular treatment when compared with a weed free treatment. Lowest weed index of 2.4% was noticed in treatment oxyfluorfen @ 37.5 g/ha + hand weeding at 21 DAS followed by pendimethalin @ 750 gm/ha + hand weeding at 21 DAS (9.7%). Highest reduction of yield up to 41.3% was observed under unweeded control. This might be due to competition of weeds

for efficient utilization of applied inputs and natural resources. These results are in close conformity with the findings of Pradhan *et al.* (2010) [13], Patil *et al.* (2013) [12] and Yashitha *et al.* (2020) [22], who observed higher weed control efficiency with minimum crop weed competition.

All weed management practices significantly improved the growth and yield attributes of finger millet over control (Table.2). Maximum plant height (115.5 cm), number of tillers /plant (3.9) and finger length (7.4) were recorded under hand weeding twice at 21 and 42 DAS and it was at par with oxyfluorfen @ 37.5 g/ha + hand weeding at 21 DAS which recorded maximum number of tillers /plant (3.8) and finger length (7.2) followed by Pendimethalin @ 750 gm/ha at 3 DAS + HW at 21 DAS. The enhancement of crop growth and yield attributes might be due to better control of weeds resulting in minimum competition with crop for plant resources during crop growth period and helped in better utilization of nutrients, moisture, space and light by the crop. Similar results were also reported by Prashanth Kumar *et al.* (2015) [14] and Prithvi *et al.* (2015) [15].

The pooled analysis over three years (2017 to 2019) revealed that hand weeding twice at 21 and 42 DAS recorded highest seed yield (3379 kg/ha) which was 42.3% higher over control and remained at par with oxyfluorfen @ 37.5 g/ha + hand weeding at 21 DAS, pendimethalin @ 750 g/ha + hand weeding at 21 DAS and Pretilachlor @ 500 g/ha + hand weeding at 21 DAS. Higher seed yield was due to realization of better plant height, no of tillers/plant, no of fingers/plant and finger length (Table-2). These findings are also supported by earlier findings by Prithvi *et al.* (2015) [15] and Shanmugapriya *et al* (2019) [19]. The lowest grain yield (1948 kg/ha) in control plot could be due to severe weed competition as evidence by maximum weed density, weed dry matter which resulted in less number of tillers, lower plant dry matter and plant height. Reduction of grain yield of finger millet to an extent of 35 to 61% was reported by Satish *et al.* (2018) [18] and Khan *et al.* (2024) [5].

Regression analysis

A negatively co-relation exists between WCE and weed density (Fig-1). Higher the weed density lowers the WCE and lowers the tiller per plant and vice versa. However, number of tillers per plant was positively co-relation with WCE and grain yield (Fig-2 & 3). Pooled data of three years revealed negative linear co-relation between weed biomass and grain yield (Fig- 4, 5 & 6). Weed biomass had a stronger relationship with grain yield than weed density. The significant negative correlation at 30 DAS, 60 DAS and at harvest with respect to weed dry weight and grain yield further justified that the remarkable effect of weed management practices with two hand weeding at 21 and 42 DAS for improvement of yield.

Economics

The input and output prices of commodities prevailed during each year of trial were taken for calculating cost of production, gross return, net return and benefit: cost ratio (B:C ratio) (Table.2). Application of oxyfluorfen 37.5 g/ha + hand weeding at 21 DAS recorded the highest net return of ₹36,308/ha and B:C ratio 1.84 with cost of cultivation ₹43,060/ha followed by hand weeding at 21 and 42 DAS having net return ₹35,036/ha and B:C ratio 1.76 with cost of cultivation ₹46,060/ha. Pre-emergence application of oxyfluorfen 37.5 g/ha + hand weeding at 21 DAS recorded higher net return with less cost of cultivation as compared to hand weeding twice at 21 and 42 DAS. The higher net monetary return in this treatment when compared with hand weeding twice at 21 and 42 DAS was not because of higher yield but because of lower cost involved in herbicide application and intercultural operation. Herbicide technology provides an alternative method of selective and cost-effective weed control strategy from the beginning, giving the crop a competitive edge and a good start. It has also been found that hand weeding is no longer economical due to labour unavailability, urbanisation, and higher labour costs. This results are in harmony with the finding of Kumar *et al.* (2023) [6] and Yashita *et al.* (2020) [22].

Table 1: Weed density, weed dry weight, weed control efficiency and weed index as influenced by weed management practices at different growth stages of finger millet (pooled data of 3 years from 2017 to 2019).

Treatment	Weed density (no/m^2)			Weed dry weight (g/m^2)			WCE (%)			WI (%)
	30 DAS	60 DAS	Harvest	30 DAS	60 DAS	Harvest	30 DAS	60 DAS	Harvest	
Oxyfluorfen @ 37.5 g/ha at 3 DAS	6.98 (50.44)	8.19 (67.00)	8.86 (78.4)	3.48 (11.69)	4.99 (25.55)	8.09 (58.28)	74.8	65.8	58.3	17.8
Pendimethalin @ 750 gm/ha at 3 DAS	7.61 (58.67)	8.61 (75.33)	9.27 (85.6)	3.79 (13.96)	5.18 (26.88)	8.27 (62.43)	70.1	62.0	56.0	19.9
Oxyfluorfen @ 37.5 g/ha at 3 DAS + Bispyribac sodium @ 20 g/ha at 21 DAS	6.72 (46.67)	7.57 (57.22)	8.34 (69.3)	3.16 (9.60)	4.40 (19.62)	8.20 (61.53)	79.6	72.7	56.3	14.0
Pendimethalin @ 750 gm/ha at 3 DAS + Bispyribac sodium @ 20 g/ha at 21 DAS	6.35 (43.44)	6.78 (46.78)	7.57 (57.9)	3.09 (9.18)	4.37 (19.15)	7.15 (43.67)	80.2	72.6	67.1	14.5
Oxyfluorfen @ 37.5 g/ha at 3 DAS + HW at 21 DAS	4.53 (21.56)	5.81 (35.56)	6.86 (47.3)	2.19 (4.44)	3.52 (12.40)	5.69 (27.93)	90.4	82.8	79.3	2.4
Pendimethalin @ 750 gm/ha at 3 DAS + HW at 21 DAS	4.79 (23.89)	6.20 (40.44)	6.87 (47.9)	2.32 (5.06)	3.92 (15.39)	6.41 (36.64)	89.1	79.0	72.4	9.7
Pretilachlor @ 500g/ha + HW at 21 DAS	5.01 (27.67)	6.03 (38.67)	6.84 (47.7)	2.47 (5.97)	4.03 (20.82)	6.52 (37.27)	87.5	77.5	72.0	12.6
HW at 21 & 42 DAS	4.70 (23.78)	5.55 (32.67)	6.32 (41.0)	2.16 (4.26)	2.70 (7.27)	4.74 (20.80)	90.8	89.9	84.6	0.0
Control	9.46 (90.00)	10.70 (114.78)	11.1 (123.0)	6.90 (47.36)	8.54 (72.74)	12.16 (131.57)	0.0	0.0	0.0	41.3
S.Em(±)	0.59	0.48	0.47	0.22	0.43	0.66	2.86	4.38	5.22	2.93
CD (p=0.05)	1.64	1.34	1.3	0.63	1.19	1.83	7.96	12.19	14.55	8.15

HW- Hand weeding, DAS- Days After Sowing. WCE- Weed Control Efficiency, WI- Weed Index. Figures in parenthesis denote original values. Data on weed density and dry weight of weeds were transformed using square root transformation $\sqrt{(x+0.5)}$ before statistical analysis.

Table 2: Growth parameters, yield and economics as influenced by weed management practices in finger millet (pooled data of 3 years from 2017 to 2019)

Treatment	Plant height at harvest (cm)	No of tillers /plant	No of fingers/ plant	Finger length (cm)	Yield (kg/ha)				Cost of cultivation (₹/ha)	Gross return (₹/ha)	Net return (₹/ha)	B:C Ratio
					2017	2018	2019	Pooled				
Oxyfluorfen @ 37.5 g/ha at 3 DAS	114.3	3.0	6.0	6.5	2505	3246	2785	2785	40360	66840	26080	1.66
Pendimethalin @ 750 g/ha at 3 DAS	109.0	2.9	6.2	6.4	2495	3135	2715	2715	40410	65160	24750	1.61
Oxyfluorfen @ 37.5 g/ha at 3 DAS+ Bispyribac sodium @ 20 g/ha at 21 DAS	112.2	3.0	6.4	6.7	2647	3450	2916	2916	41210	69984	28774	1.70
Pendimethalin @ 750 g/ha at 3 DAS+ Bispyribac sodium @ 20 g/ha at 21 DAS	112.4	3.4	6.4	6.6	2563	3380	2898	2898	41310	69552	28242	1.68
Oxyfluorfen @ 37.5 g/ha at 3 DAS + HW at 21 DAS	115.3	3.8	6.9	7.2	3129	3649	3307	3307	43060	79368	36308	1.84
Pendimethalin @ 750 g/ha at 3 DAS + HW at 21 DAS	110.9	3.4	6.2	6.5	2893	3425	3051	3051	42810	73224	30414	1.71
Pretilachlor @ 500 g/ha + HW at 21 DAS	111.7	2.9	62	6.7	2937	3342	2955	2955	42760	70920	28160	1.66
HW at 21 & 42 DAS	115.5	3.9	6.7	7.4	3193	3707	3379	3379	46060	81096	35036	1.76
Control	108.0	2.2	5.0	5.4	1931	2225	1981	1981	33960	47544	13584	1.40
SEm(±)	3.1	0.2	0.2	0.3	144	150	137	137	-	-	-	-
CD (p=0.05)	8.6	0.7	0.7	0.7	432	451	382	382	-	-	-	-

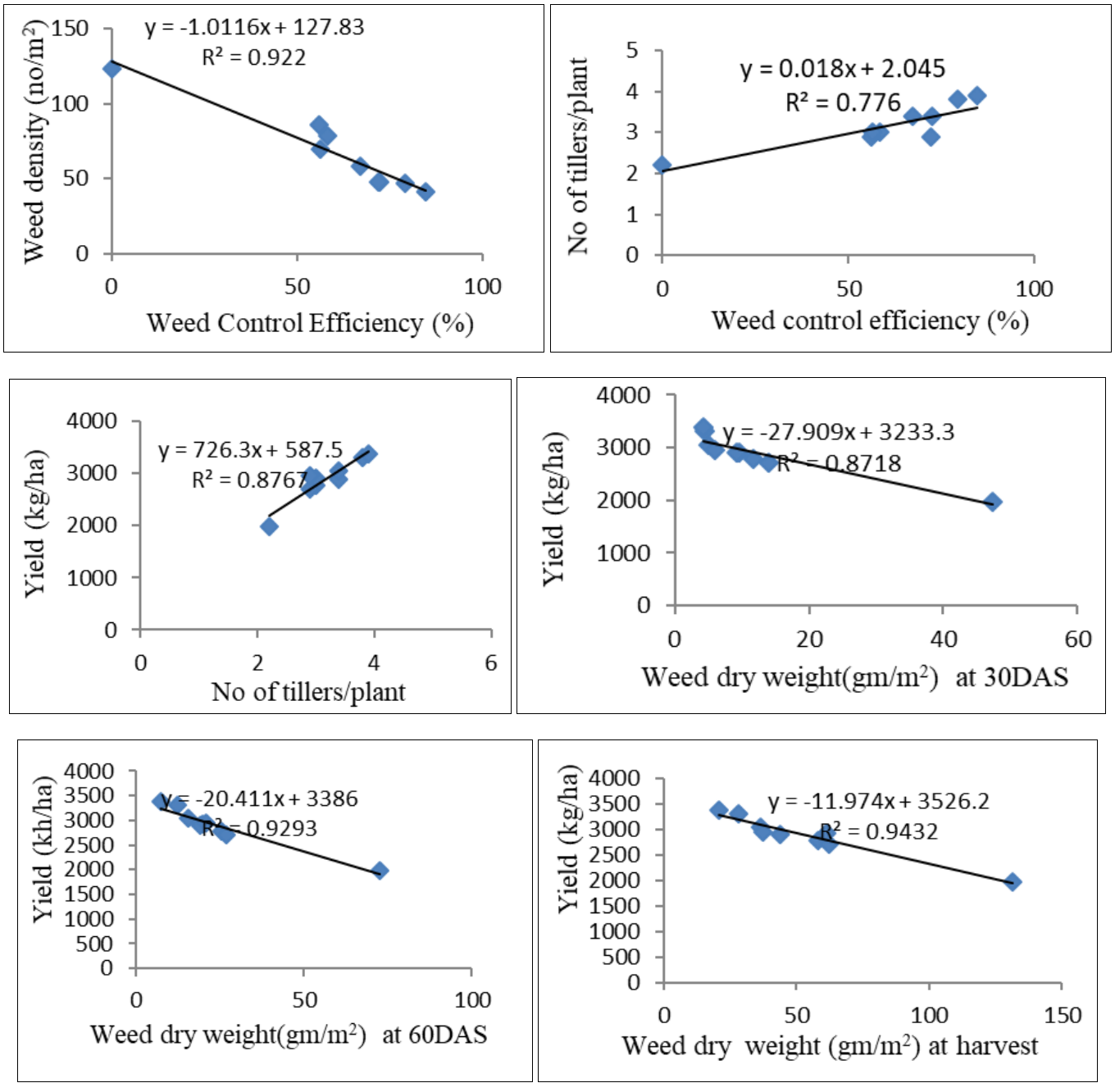

Fig 1-6: Regression analysis

Conclusion

It can be concluded that pre-emergence application of oxyfluorfen 37.5 g/ha followed by one hand weeding at 21 DAS was found to be more effective in increasing the yield by controlling broad spectrum of weeds in direct seeded finger millet as manual weeding is un-economical as well as tedious, time and labour consuming practice.

Acknowledgements

The authors sincerely acknowledge the financial and logistic support of Odisha University of Agriculture & Technology, Bhubaneswar for successfully conducting the experiment at Regional Research and Technology Transfer Station, Semiliguda, Koraput, Odisha during three consecutive *kharif* seasons from 2017 to 2019.

References

1. Afsari Banu, Fathima PS, Denesh GR, Sunil CM. Pre and post-emergence herbicides for weed management in finger millet. Indian J Weed Sci. 2016;48(4):447-449.
2. Gill VS, Vijayakumar M. Weed index-A new method for reporting weed control trials. Indian J Agron. 1966;14(1):96-98.
3. Gomez KA, Gomez AA. Statistical procedures for agricultural research. 2nd ed. New York: John Wiley and Sons; 1984. p. 680.
4. Director of Agriculture and Food Production, Bhubaneswar. Government of Odisha. 5 Decades of Odisha agriculture statistics. 2020.
5. Khan MR, Narayanan AL, Mala S, Mohan A. Performance of various integrated weed management practices in transplanted finger millet (*Eleusine coracana* (L.) Gaertn.) for the coastal region of Karaikal, India. Plant Arch. 2024;24(2):400-406.
6. Kumar H, Tiwari N, Savu RM, Langangmeilu G. Effect of different herbicidal weed management on yield and economics of ragi. Int J Environ Clim Change. 2023;13(9):3481-3485.
7. Kumara O, Basavaraj Naik T, Palaiah P. Effect of weed management practices and fertility levels on growth and yield parameters in finger millet. Karnataka J Agric Sci. 2007;20(2):230-233.
8. Kujur S, Singh VK, Gupta DK, Tandon A, Ekka V, Agrawal HP. Influence of weed management practices on weeds, yield and economics of finger millet (*Eleusine coracana* L. Gaertn). Int J Bio-resource Stress Manag. 2018;9(2):209-213.
9. Indiastat. 2022-23. Available from: www.indiastat.com
10. Mani VS, Malla ML, Gautam KC, Bhagwandas. Weed killing chemical in potato cultivation. Indian Farming. 1973;(8):17-18.
11. Pandey S, Lakra RK, Kumari Nargis, Alam P, Pura AN. Weed management on direct seeded finger millet (*Eleusine coracana* L.) under rainfed condition of Jharkhand. Int J Curr Microbiol App Sci. 2018;7:844-850.
12. Patil B, Reddy VC, Ramachandra Prasad TV, Shankaralingappa BC, Devendra R, Kalyana Murthy KN. Weed management in irrigated organic finger millet. Indian J Weed Sci. 2013;45(2):143-145.
13. Pradhan A, Rajput AS, Thakur A. Effect of weed management on growth and yield of finger millet. Indian J Weed Sci. 2010;42(1&2):53-56.
14. Prashanth Kumar MK, Shekara BG, Yamuna BG, Sunil CM. Crop weed competition for nutrients by weed and drill sown finger millet (*Eleusine coracana* L. Gaertn.). Nat Acad Agric Sci. 2015;33(3):2049-2054.
15. Prithvi KB, Rao AS, Srinivasulu K. Weed management in transplanted ragi. Indian J Weed Sci. 2015;47(2):214-215.
16. Ramadevi S, Karuna Sagar G, Subramanyam D, Kumar AR. Weed management in transplanted finger millet with pre- and post-emergence herbicides. Indian J Weed Sci. 2021;53(3):297-299.
17. Revathi E, Reddy BS, Dayakar P. An assessment of millet-based agro-biodiversity systems enriched with a mix of modern and traditional ecological packages. 2024.
18. Satish P, Lakra RK, Nargis K, Alam P, Puran AN. Weed management on direct seeded finger millet (*Eleusine coracana* L.) under rainfed condition of Jharkhand. Int J Curr Microbiol Appl Sci. 2018;7:844-850.
19. Shanmugapriya P, Rathika S, Ramesh T, Janaki P. Evaluation of weed management practices on weed control and yield of transplanted finger millet. Pharm Innov J. 2019;8(5):276-278.
20. Tuti MD, Singh S, Pandey BM, Bisht JK, Pattanayak A. Weed management in rainfed finger millet. Indian J Weed Sci. 2016;48(1):74-75.
21. Vinothini G, Murali Arthanari P. Pre-emergence herbicide application and hand weeding for effective weed management in irrigated kodo millet (*Paspalum scrobiculatum* L.). Int J Chem Stud. 2017;5(3):366-369.
22. Yathisha KP, Yogananda SB, Thimmegowda P, Sanjay MT, Prakash SS. Growth and yield of direct seeded finger millet (*Eleusine coracana* L.) as influenced by weed management practices. J Crop Weed. 2020;16(3):67-72.