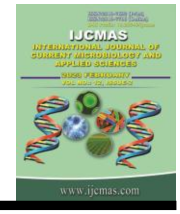
Int.J.Curr.Microbiol.App.Sci (2023) *12*(02): 74-82

EXCELLENT PUBLISHERS

International Journal of Current Microbiology and Applied Sciences
ISSN: 2319-7706 **Volume 12 Number 2 (2023)**
Journal homepage: http://www.ijcmas.com



Original Research Article https://doi.org/10.20546/ijcmas.2023.1202.007

Effect of Different Weed Management Practices on Yield and Weed Dynamics of Summer Sesame (*Sesamum indicum* L.)

Verma, Neetu[1*], K. L. Nandeha[2] and V. K. Swarnkar[3]

[1]*Krishi Vigyan Kendra, Durg, C.G., India*
[2]*Department of Agro meteorology, IGKV, Raipur, C.G., India*
[3]*Krishi Vigyan Kendra, Raipur, C.G., India*

**Corresponding author*

A B S T R A C T

Keywords

Sesamum indicum L, oil-rich plants, cultivation, vegetable oils, food, medicine and industries

Article Info

Received: 02 January 2023
Accepted: 30 January 2023
Available Online: 10 February 2023

A field investigation entitled "Effect of different weed management practices on growth, yield and weed dynamics of summer sesame (*Sesamum indicum* L.)" was under taken during *summer* seasons of 2020 and 2021 at agricultural farm of Krishi Vigyan Kendra, Pahanda (A), Durg (Chhattisgarh). The experiment was laid out in Randomized Block Design (RBD) with three replications. The treatments comprised W_1: Weedy check, W_2: Hand weeding at 20 and 40 DAS, W_3: Pendimethaline 30 EC @ 1 kg *ai* ha^{-1} as PE, W_4: Quizalofop ethyl 5 EC @ 40 g *ai* ha^{-1} at 20 DAS, W_5: Propaquizafop 10 EC @ 50-100 g *ai* ha^{-1} at 20 DAS, W6: Imazethapyr 10 SL @ 75 g *ai* ha^{-1} at 25 DAS and W_7: Weed free check. The highest seed yield (752.00 and 830 kg ha^{-1}) was recorded in W_7; Weed free check, which was at par with W_2; hand weeding at 20 and 40 DAS (721.33 kg ha^{-1} in 2020 and 800.00 kg ha^{-1} in 2021), followed by $W_{5;}$ propaquizaofop (662.00 kg ha^{-1} in 2020 and 758.33 kg ha^{-1} in 2021) and $W_{4;}$ quizalofop ethyl (640.33 kg ha^{-1} in 2020 and 733.67 kg ha^{-1} in 2021), while the lowest seed yield was achieved by W_1; weedy check (268.00 kg ha^{-1} in 2020 and 366.67 kg ha^{-1} in 2021).This treatment also recording highest values on yield parameters. Among the different weed management treatments, weed free check (W_7) recorded statistically lower density of total weeds (2.27, 2.26, 2.62 m^{-2} during 2020 and 2.69, 2.69, 2.83 m^{-2} during 2021) than rest of the treatments at 45, 60 and 75 DAS. Second best treatment was W_2; two hand weedings at 20 and 40 DAS. Among all the herbicidal treatments, application of propaquizafop recorded lower density of total weeds (5.64, 5.56, 5.64 m^{-2} during 2020 and 5.37, 5.58, 5.71 m^{-2} during 2021).

Introduction

Sesame (*Sesamum indicum* L.), adorned as queen of oilseeds and the queen of vegetable oils belonging to family Pedaliaceae, is one of the oldest oil-rich plants in the world (Janick and Whipkey, 2002) and that originated in Africa (Brar and Ahuja, 1979). Sesame is the oldest indigenous oil plant with longest history of its cultivation in India. It is one of the most important ancient edible oilseed crop grown in India for its importance in food, medicine and industries. Among the oilseed crops, sesame ranks first for its higher oil content (46-64%) with 6335 K cal Kg^{-1} of dietary energy in seeds (Kumar and Goel, 1994). India is the world's second largest edible oil consumer after China, meeting more than half of its annual requirement through imports (Babu and Hedge, 2011), therefore there is need to boost oilseeds production in India.

India ranks first in the world in terms of sesame growing area (23%) and second largest producer of sesame in the world after Myanmar exporting 25% of total production (between 5 lakh to 6 lakh metric tonnes of sesame annually) (Anonymous, 2016).

Nearly one fourth of world's sesame production is from India which occupies 38 per cent with an area of 16.67 lakh hactares with a production of 7.47 lakh tonnes and productivity of 448 kg ha^{-1}.

But the productivity of Sesame in general is much lower than its potential yield. This indicates the scope and need to increase the productivity of Sesame in India.

Among all oilseeds, sesame costs maximum in terms of export i.e. Rs. 3583.46 crore (groundnut- Rs. 3212.06 crore and niger- Rs. 113.61 crore) (Anonymous, 2014). The potential yield of sesame (2000 kg ha^{-1}) is much higher than actual yield, as much damage occurs by pests and diseases, insufficient weed control and lack of nutrients (Mkamilo and Bedigian, 2007).

Among the several constraints in sesame production, weed infestation is also one of the major factor limiting the yield of sesame. Sowing of sesame seeds is very difficult because of its small size and need to be placed precisely at optimum depth of sowing for good germination and establishment. Further, sesame seedlings are small and tender coupled with slow initial growth compared to other oil seed crops resulting in increased weed infestation. The severity of yield loss depends upon the type of weed flora and time of weed infestation in a given agro-climatic conditions. The yield loss due to uncontrolled weed growth in sesame has been reported as high as 50 per cent (Dungarwal *et al.*, 2003). Being a slow growing crop during seedling stage weeds affect the growth of sesame and reduce the yield. Yield reduction due to weeds was observed to the tune of 55 to 65% (Punia *et al.*, 2001). The period from 15 to 30 days after sowing (DAS) is the most critical period of crop-weed competition in sesame (Venkatakrishnan and Gnanamurthy, 1998). Though the conventional methods of weed control are very much effective, but due to high wages and non- availability of labour during critical weeding season, use of herbicides could be more time saving, economical and efficient to check early crop-weed competition.

Keeping above fact in view, with the specific object that to find out the effect of different weed management practices on growth, yield and weed dynamics in summer sesame, a field investigation entitled "Effect of different weed management practices on growth, yield and weed dynamics of summersesame (*Sesamum indicum* L.)" was under taken during *summer* seasons of 2020 and 2021 at agricultural farm of Krishi Vigyan Kendra, Pahanda (A), Durg (Chhattisgarh). The soil of the experimental field was clayey in nature (vertisol) locally known as *kanhar* soil. The soil was neutral in reaction, low in organic carbon, nitrogen, medium in phosphorus and high in potash contents.

Materials and Methods

The experiment was laid out in Randomized Block Design (RBD) with three replications. The treatments comprised W_1: Weedy check, W_2: Hand weeding at 20 and 40 DAS, W_3: Pendimethaline 30 EC @ 1 kg *ai* ha^{-1} as PE, W_4: Quizalofop ethyl 5 EC @ 40 g *ai* ha^{-1} at 20 DAS, W_5: Propaquizafop 10 EC @ 50-100 g *ai* ha^{-1} at 20 DAS, W6: Imazethapyr 10 SL @ 75 g *ai* ha^{-1} at 25 DAS and W_7: Weed free check.

Sesame variety TKG-308 was taken as test crop. Treated seeds were sown manually on 15.02.2021 in the experiment during 2020 and 2021, respectively, adopting a spacing of 30 cm x 10 cm and a uniform recommended dose of 60 kg N, 40 kg P_2O_5 and 20 kg K_2O ha^{-1} was applied through urea, di-ammonium phosphate and muriate of potash in experiment. All the herbicides were applied with manually operated knapsack sprayer fitted with flat-fan nozzle at spray volume of 500 l ha^{-1}. Weed density and dry matter were recorded at 45, 60 and 75 DAS with the help of 1 x 1 m quadrate by throwing randomly at three places in each plot.

Weeds were removed and counted species wise. Plant height was measured by gentle stretching the main stem of the plant to its full length and measuring the height in centimeters. Observations were recorded for different characters and mean values were subjected to analysis. The combined analysis of two years revealed that the year effect was non-significant, and the mean data of two years were analyzed. The statistical analysis of data was done using OPSTAT Software.

Results and Discussion

Weed flora

The major weed species observed in the experimental field of sesame at 45, 60 and 75 DAS included grassy weeds like, *Cynodon dactylon*, *Digitaria sanguinalis*, *Eleusine indica*, *Echinochloa colonum* and *Dactyloctenium aegyptium* and broad leaved weeds like *Alternanthra sessilis*, *Trianthema portulacastrum*, *Phyllanthus niruri*, *Commelina benghalensis* and *Parthenium hysterophorus* (Fig.-1).

Effect on weeds

Total weed density

Total weed density (Table-1) differed significantly due to weed management practices at all the growth stages. Among the different weed management treatments, weed free check (W_7) recorded statistically lower density of total weeds (2.27, 2.26, 2.62 m^{-2} during 2020 and 2.69, 2.69, 2.83 m^{-2} during 2021) than rest of the treatments at 45, 60 and 75 DAS. Second best treatment was W_2; two hand weedings at 20 and 40 DAS. Among all the herbicidal treatments, application of propaquizafop recorded lower density of total weeds (5.64, 5.56, 5.64 m^{-2} during 2020 and 5.37, 5.58, 5.71 m^{-2} during 2021). However, all the weed management measures reduced the total weed density significantly over weedy check at all stages of crop growth.

Relative weed density

The influences of different weed management practices on the relative density of grasses and broad leaved weeds were studied (Table -1). The relative density of grasses was decreasing in all the treatments as the number of days increased, whereas density of BLWs increased with advancement of crop stage. W_1; weedy check and W_3; application of pendimethalin, showed almost similar density of weed flora at the later stage of observations. Among treatments of herbicide application, density of broad- leaved weed was found higher in W_5; propaquizafop and W_4; quizalofop.

Weed dry weight

Weed dry weight differed significantly at all the stages of growth due to various weed management treatments at 45, 60 and 75 DAS stages during both the years. Dry matter of weeds was increased with the advancement of crop stages (Table-1). Weedy check (W_1) showed higher weed dry weight (6.27, 7.47, 8.73 and 8.94, 6.73, 7.56 g m^{-2} during 2020 and 2021), followed by W_3; Pendimethalin 30 EC @1 kg *ai* ha^{-1}(6.02, 6.31, 6.54 and 5.56, 5.79, 6.24 g m^{-2}) at all the stages of observations during 2020 and 2021. However, weed free check (W_7) treatment showed lower dry matter of weeds in both the years (2.11, 2.30, 2.75 and 2.55, 3.05, 3.20 g m^{-2}).

Effect on crop yield and yield attributes

Number of capsules plant^{-1}

Number of capsules $plant^{-1}$ was significantly influenced by weed management at all growth stages of sesame (Table-2). It was observed that the weed free condition of plot significantly increased number of capsules $plant^{-1}$. Treatment W_7; Weed free check produced maximum number of capsules $plant^{-1}$ in 2020 (114.50) and 2021(129.33) which was found at par with W_2; hand weeding at 20 and 40 DAS

(111.93 in 2020 and 126.00 in 2021), $W_{5;}$ propaquizaofop (108.60 in 2020 and 113.00 in 2021) and $W_{4;}$ quizalofop ethyl (106.47 in 2020 and 110.00 in 2021). It may be due to efficiency of photosynthesis. Maximum uptake of water, nutrients and light by plants, increased photo assimilates allocation into reproductive parts that leads to increased capsules plant^{-1}. Serogy (1992) and Zubair *et al.,* (2011) found similar result. The lowest number of capsules plant^{-1} was achieved with W_1 (58.83 and 62.67) during both the experimental years. Bhadauria *et al.,* (2012) found that two hand weedings at 15 and 30 DAS resulted in significantly highest value in capsules plant^{-1}.

Number of seeds capsule^{-1}

Results depicted on table 2, number of seeds capsule^{-1} was influenced by weed management treatments and were statistically significant. It is evident from the present study that, the highest number of seeds capsule^{-1} was recorded in W_7; Weed free check (66.67 and 69.67), which was statistically similar with W_2; hand weeding at 20 and 40 DAS (63.33 in 2020 and 67.33 in 2021). This might be due to poor dry matter production of crop, which in turn resulted in poor partitioning of photosynthates to developing seeds. The second highest number of seeds capsule^{-1} (57.00 in 2020 and 64.67 in 2021) was obtained from W_5 which was statistically similar with W_4 (56.33 in 2020 and 63.67 in 2021).The lowest number of seeds capsule^{-1} was achieved with W_1 (34.67 and 40.67) during both the experimental years.

Seed yield

Seed yield (Table 2) was influenced by treatments of weed management practices were statistically found significant. The highest seed yield (752.00 and 830 kg ha^{-1}) was recorded in W_7; Weed free check, which was at par with W_2; hand weeding at 20 and 40 DAS (721.33 kg ha^{-1} in 2020 and 800.00 kg ha^{-1} in 2021), followed by $W_{5;}$ propaquizaofop (662.00 kg ha^{-1} in 2020 and 758.33 kg ha^{-1} in 2021) and $W_{4;}$ quizalofop ethyl (640.33 kg ha^{-1} in 2020 and 733.67 kg ha^{-1} in 2021), while the lowest seed yield was achieved by W_1; weedy check (268.00 kg ha^{-1} in 2020 and 366.67 kg ha^{-1} in 2021).

Narkhede *et al.,* (2000) observed that two hand weeding and hoeing in sesame significantly gave higher seed yield than rest of the integrated weed management practices. This might be due to prolonged weed free crop growth produced higher number of capsules plant^{-1}, seeds capsule^{-1} and 1000 seed weight that leads to higher seed yield. Serogy (1992); Zewdie (1996); Shamna and Mishra (1997); Narkhede *et al.,*(2000) and Amare *et al.,* (2009) reported a higher seed yield in sesame under prolonged weed free conditions after crop emergence.

Stover yield (kg ha^{-1})

Results depicted in table 2 on stover yield were influenced by treatments of weed management practices and were found statistically significant. The highest stover yield (1068.33 and 1287.67 kg ha^{-1}) was recorded in W_7; Weed free check, which was at par with W_2; hand weeding at 20 and 40 DAS (1044.00 kg ha^{-1} in 2020 and 1261.00 kg ha^{-1} in 2021), followed by $W_{5;}$ propaquizafop (961.33 kg ha^{-1} in 2020 and 1202.67 kg ha^{-1} in 2021) and $W_{4;}$ quizalofop ethyl (978.00 kg ha^{-1} in 2020 and 1160.00 kg ha^{-1} in 2021), while the lowest stover yield was achieved by W_1; weedy check (849.00 kg ha^{-1} in 2020 and 1025.33 kg ha^{-1} in 2021).This might be due to effective control of all the categories of weeds during the critical stage might have increased the plant height and produced more number of leaves and branches plant^{-1}, which resulted in increased dry matter production leads to better vegetative growth thus increased stover yield. These results are in agreement with those of Gnanavel and Anbhazhagan (2006) and Dhaka *et al.,* (2013).

In experiment, the lowest density of grasses and broad-leaved weeds were recorded under W_7; weed free check, followed by W_2; two hand weeding at 20 and 40 DAS, while the highest density of both types of weed was recorded with weedy check (W_1).

Table.1 Effect of different weed management practices on weed dynamics at 75 DAS of summer sesame

Treatments	Total weed density m^{-2}			Relative density of m^{-2}						Weed dry weight g m^{-2}		
				Narrow leaved weeds			Broad leaved weeds					
	2020	2021	Mean	2020	2021	Mean	2020	2021	Mean	2020	2021	Mean
W_1	9.41 (87.70)	8.88 (76.86)	9.12 (82.28)	55.28	58.10	56.69	44.72	41.90	43.31	8.73 (75.42)	7.56 (56.27)	8.17 (65.85)
W_2	4.25 (17.10)	4.10 (15.83)	4.17 (16.47)	49.95	45.94	47.94	50.05	54.06	52.06	4.21 (16.76)	4.12 (16.00)	4.16 (16.38)
W_3	7.21 (51.03)	7.07 (49.10)	7.14 (50.07)	58.07	56.00	57.03	41.93	44.00	42.97	6.54 (41.85)	6.24 (37.97)	6.39 (39.91)
W_4	5.84 (33.13)	5.77 (32.30)	5.80 (32.72)	38.53	36.33	37.43	61.47	63.67	62.57	5.55 (29.82)	5.38 (28.03)	5.47 (28.93)
W_5	5.64 (30.77)	5.71 (31.60)	5.67 (31.18)	38.91	36.61	37.76	61.09	63.39	62.24	5.26 (26.77)	5.26 (26.73)	5.26 (26.75)
W_6	6.56 (42.10)	6.32 (38.97)	6.44 (40.53)	52.28	50.66	51.47	47.72	49.34	48.53	6.30 (38.73)	5.90 (33.87)	6.10 (36.30)
W_7	2.62 (5.93)	2.83 (7.03)	2.73 (6.48)	37.97	49.35	43.66	62.03	50.65	56.34	2.75 (6.65)	3.20 (9.30)	2.99 (7.97)
S.Em ±	**1.60**	**0.46**	**0.84**	**3.57**	**1.21**	**2.10**	**3.57**	**1.21**	**2.10**	**1.39**	**0.67**	**0.76**
C D (P = 0.05)	**4.98**	**1.42**	**2.62**	**11.11**	**3.76**	**6.54**	**11.11**	**3.75**	**6.54**	**4.33**	**2.08**	**2.37**

*Figures in parenthesis indicate square root transformed $\sqrt{X + 0.5}$ values.

Where, W_1: Weedy check,

W_2: Hand weeding at 20 and 40 DAS

W_3: Application of Pendimethaline 30 EC @ 1 kg *ai* ha^{-1} as pre-emergence

W_4: Application of Quizalofop ethyl 5 EC @ 40 g *ai*ha^{-1} at 20 DAS

W_5: Application of Propaquizafop 10 EC @ 50-100 g *ai* ha^{-1} at 20 DAS

W_6: Application of Imazethapyr 10 SL @ 75 g *ai* ha^{-1} at 25 DAS

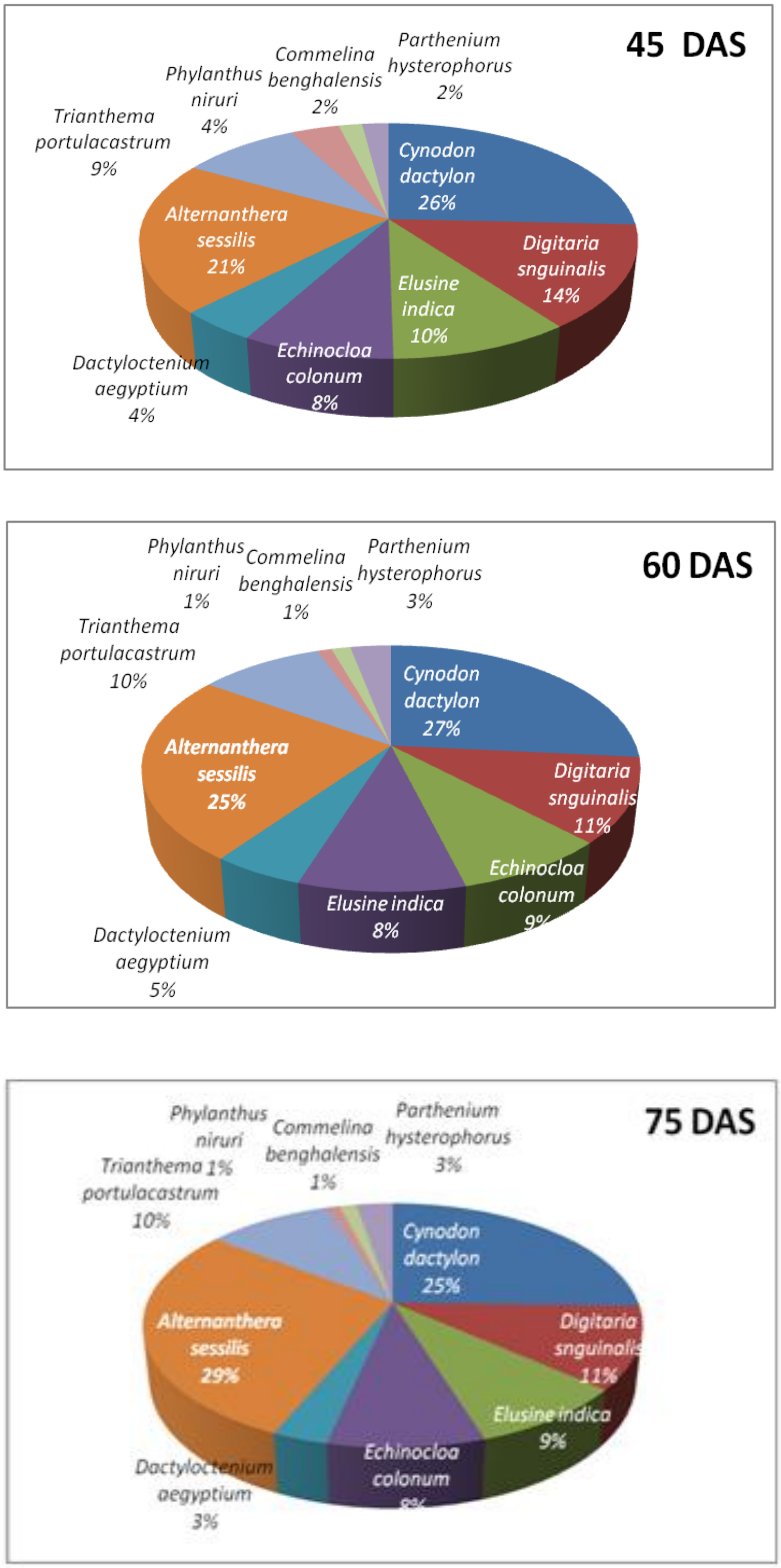
W_7: Weed free check

Table.2 Effect of different weed management practices on yield and yield attributes of summer sesame

Treatments	Number of capsules plant^{-1}			Number of seeds capsule^{-1}			Seed yield (kg ha^{-1})			Stover yield (kg ha^{-1})		
	2020	2021	Mean	2020	2021	Mean	2020	2021	Mean	2020	2021	Mean
W_1	58.83	62.67	60.75	34.67	40.67	37.67	268.00	366.67	317.33	849.00	1,025.33	937.17
W_2	111.93	126.00	118.97	63.33	67.33	65.33	721.33	800.00	760.67	1044.00	1,261.00	1152.50
W_3	70.87	76.00	73.43	52.67	56.00	54.33	352.67	440.00	396.33	924.00	1,040.00	982.00
W_4	106.47	110.00	108.23	56.33	63.67	60.00	640.33	733.67	687.00	978.00	1,160.00	1069.00
W_5	108.60	113.00	110.80	57.00	64.67	60.83	662.00	758.33	710.17	961.33	1,202.67	1082.00
W_6	102.00	105.67	103.83	54.00	60.67	57.33	623.33	723.33	673.33	945.33	1,183.33	1064.33
W_7	114.50	129.33	121.92	66.67	69.67	68.17	752.00	830.00	791.00	1068.33	1,287.67	1178.00
S.Em ±	**3.53**	**6.78**	**4.62**	**1.15**	**1.48**	**1.23**	**17.58**	**16.84**	**12.18**	**17.44**	**28.656**	**14.94**
C D (P = 0.05)	**10.99**	**21.13**	**14.41**	**3.57**	**4.61**	**3.72**	**54.75**	**52.46**	**37.94**	**54.33**	**89.276**	**46.56**

Where, W_1: Weedy check,
W_2: Hand weeding at 20 and 40 DAS
W_3: Application of Pendimethaline 30 EC @ 1 kg *ai* ha^{-1} as pre-emergence
W_4: Application of Quizalofop ethyl 5 EC @ 40 g *ai*ha^{-1} at 20 DAS
W_5: Application of Propaquizafop 10 EC @ 50-100 g *ai* ha^{-1} at 20 DAS
W_6: Application of Imazethapyr 10 SL @ 75 g *ai* ha^{-1} at 25 DAS
W_7: Weed free check

Fig.1 Species wise weed compositions at different stages of sesame under weedy check



Weedy check (W_1) showed higher weed dry weight, followed by W_3; Pendimethalin 30 EC @1 kg *ai* ha^{-1} at all the stages of observations during 2020 and 2021. However, weed free check (W_7) treatment showed lower dry matter of weeds in both the years. Maximum weed control efficiency was found under W_7; Weed free check during both the years, followed by W_2; two hand weedings. Application of Pendimethaline 30 EC @ 1 kg *ai* ha^{-1} as PE was found inferior than the others as it recorded lower weed control efficiency. Minimum weed index was found under two hand weeding (W_2), followed by application of propaquizafop 10 EC @ 50-100 g *ai* ha^{-1}, whereas maximum weed index was estimated with weedy check (W_1).

Yield parameters like no. of capsules plant^{-1}, seed capsule^{-1}, seed plant^{-1}, 1000-seed weight, harvest index, seed yield and stover yield was observed maximum in W_7 (Weed free check) which was found statistically similar with W_2 (Hand weeding at 20 and 40 DAS). While the lowest was recorded under W_1; weedy check.

Highest cost of cultivation and gross return were found with the weed free check (W_7), followed by W_2; Hand weeding at 20 and 40 DAS, whereas maximum net return and benefit: cost ratio was observed in W_5 that is application of Propaquizafop 10 EC @ 50-100 g *ai* ha^{-1} at 20 DAS. Minimum cost of cultivation, gross return, net return and benefit: cost ratio was associated with W_1 (weedy check).

References

Amare, M., G. Woldewahid and J. J. Sharma. 2009. Sesame crops versus weeds: when is the critical period of weed control. *African Crop Science Conference*. 9, pp. 591–593.

Babu, S. N. S. and Hedge, D. M. 2011. Best management practices for increasing productivity and resource use efficiency in oilseeds. *J. Oilseeds Res*. 28 : 1-23.

Bhadauria, N., Yadav, K. S., Rajput, R. L and Singh, V. B. (2012). Integrated weed management in sesame (*Sesamum indicum* L.). *Indian Journal of Weed Science*. 44(4): 235-237.

Brar, G., Ahuja, R. 1979. Sesame: its culture, genetics, breeding and biochemistry. *Annual Review Plant Science*. pp. 285-313.

Dhaka, M. S., Yadav, S. S., Shivran, A. C., Choudary, G. L and Prajapat, K. 2013. Effect of weed management on performance of sesame under varying levels of nitrogen. *Annuals of Agricultural Research*.34(2) : 179-184

Dungarwal, H. S., Chaplot, P. C and Nagda, B. L. 2003. Integrated weed management in sesame (*Sesamum indicum* L.*)*. *Indian Journal of Weed Science*.35: 236-238.

Gnanavel, I and Anbhazhagan, R. 2006. Integrated weed management in sesame (*Sesamum indicum* L.). *Agricultural Science Digest*.26(1): 67-68.

Janick, J. and Whipkey, A. 2002. Trends in new crops and new uses. ASHS Press, Alexandria, Sesame in Crop production in Tropical Africa. DGIC; Ministry of Foreign Affairs, External Trade & International Cooperation, Brussels, Belgium, Rae Mackers, R. H. (ed) pp.797- 803.

Kumar, S. and Goel, P. D. 1994. A great ancient oilseed Sesamum. *Farmer and Parliament* 12 : 6-7.

Mkamilo, G. S. and Bedigian, D. 2007. *Sesamum indicum* L. in H.A.M. Vander Vossen and G.S. Mkamilo, (Eds.). Vegetable oils.Plant Resources of Tropical Africa [PROTA].PROTA Programme, Wageningen University, the Netherlands.2007; 14:153-158.

Narkhede. T. N., Wadile, S. C., Attarde, D. R and Suryawanshi. 2000. Integrated weed management in sesame under rainfed condition. *Indian Journal of Agricultural Research.* 34 : 247-250.

Punia, S. S., Mayank, R., Ashkok, Y., Malik, R. K. 2001. Bioefficacy of dinitroaniline herbicides against weeds in sesame (*Sesamum indicum* L.).*Weed Sci*33: 143–146.

Serogy, S. T. 1992. Some sesame varieties and their response to planting methods and hand weeding. *Assiut J. Agric. Sci*. 23(2): 151-164.

Shamna, S. N. and Mishra, P. J. 1997. Weed control in Indian mustard. Cruciferae Newsletter, 19:123-124.

Venkatakrishnan, A. S. and Gnanamurthy, P. 1998. Influence of varying period of crop-weed competition in sesame. *Indian Journal of Weed Science* 30 (3&4): 209-210.

Zewdie, K. (1996). Importance of yield limiting factors on sesame under irrigation at Werer, IAR. *Newsletter Agric. Res*. 11(2): 6.

Zubair, I., Tanveer, A., Safdar, M. E., Aziz, A., Ashraf, M., Akhtar, N., Atif, F. A., Ali, A. and Maqbool, M. M. (2011). Effects of weed crop competition period on weeds and yield and yield components of sesame (*Sesamum indicum* L.). *Pakistan. J.Weed Sci. Res.*17(1): 51–63.

How to cite this article:

Verma, Neetu, K. L. Nandeha and Swarnkar, V. K. 2023. Effect of Different Weed Management Practices on Yield and Weed Dynamics of Summer Sesame (*Sesamum indicum* L.). *Int.J.Curr.Microbiol.App.Sci.* 12(02): 74-82. **doi:** https://doi.org/10.20546/ijcmas.2023.1202.007