Biological Forum – An International Journal **14(4): 164-168(2022)**

ISSN No. (Print): 0975-1130
ISSN No. (Online): 2249-3239

Yield Attributes, Yield and Economics of Sesame and Potato under Sesame – Potato Sequence as Influenced by Nutrient Management Practices

Rajendra Patel[1]*, S.P. Singh[2], Ekta Joshi[1], Vikash Singh[1], S.K. Sharma[2], M.J. Sadawarti[2], V.K. Dua[3] and S. Rawal[4]

[1]Department of Agronomy, College of Agriculture, RVSKVV, Gwalior (Madhya Pradesh), India.
[2]ICAR-Central Potato Research Institute - RS, Gwalior (Madhya Pradesh), India.
[3]ICAR-Central Potato Research Institute, Shimla (Himachal Pradesh), India.
[4]ICAR-Central Potato Research Institute- RS, Meerut (Uttar Pradesh), India.

(Corresponding author: Rajendra Patel)*
(Received 09 August 2022, Accepted 23 September, 2022)
(Published by Research Trend, Website: www.researchtrend.net)

ABSTRACT: The present investigation on response of organic nutrient management on the yield attributes, yield and economics of sesame and potato crop in sesame - potato sequence in Gwalior regions was conducted at ICAR, Central Potato Research Institute – RS, Gwalior (M.P.) during two consecutive years (2020-21 and 2021-22). The experiment was laid out in Randomized Block Design (RBD) with four replications having 7 treatments. The treatments comprised of decomposed crop residue @ 25 t ha^{-1} with biofertilizer (*Azotobacter* and PSB), FYM @ 25 t ha^{-1}, vermicompost @ 7.5 t ha^{-1}, neem cake @ 5 t ha^{-1} in different treatments in addition to control, 100% RDF and INM (100% RDF + FYM @ 25 t ha^{-1}). The results revealed that among all the organic manures, RDF and integrated treatment T_7 (100% RDF + FYM 25 t ha^{-1}) showed better results in phenological parameters like days to flower initiation (50.3 and 51.6), days to 50% flowering (55.9 only 2021-22), days to capsule initiation (64.4 and 65.5) and days to 50% capsule formation which were numerically higher with 100% RDF NPK during 2020-21 and T_3 + vermicompost @ 7.5 t ha^{-1} (71.4) during 2021-22 as compared to other treatments. Yield and yield attributing characters were noted significantly higher under 100% RDF + FYM @ 25 t ha^{-1} *viz.*, number of capsules plant^{-1} (92.4 and 83.5, respectively), seeds capsule^{-1} (72.4 in 2020-21) but capsule length was showed non significant effect under different treatments. Seed (944 and 870 kg ha^{-1}) and stover yields (3013 and 2980 kg ha^{-1}) in sesame were recorded highest under 100 % RDF + FYM @ 25 t ha^{-1} crop during 2020-21 and 2021-22, respectively. Application of 100% RDF + FYM @25 t ha^{-1} gave significantly higher yield attributing characters *viz.* number of tubers plant^{-1} (12.13 and 10.45), fresh weight of tuber plant^{-1} (522.9 and 508.2 g) and dry weight of tuber plant^{-1} (103.2 and 97.4 g) which were significantly superior over other treatments. Tuber yield (44.2 and 47.2 t ha^{-1}) of potato during 2020-21 and 2021-22 were also highest under 100% RDF + FYM @ 25 t ha^{-1}. Highest harvest index was recorded with T_3 + neem cake @ 5 t ha^{-1} (84.5%) which was significantly higher than 100% RDF NPK and 100% RDF + FYM @ 25 t ha^{-1} during 2020-21. However, it was highest with T_3 + FYM @ 25 t ha^{-1} during 2021-22 which was significantly higher than 100% RDF + FYM @ 25 t ha^{-1}. Application of crop residue @ 25 t ha^{-1} + Biofertilizer (*Azotobacter* + PSB, @ 1 l ha^{-1}, each respectively) produced the highest net returns (₹ 53144 and 44360 ha^{-1}) in sesame crop during first and second years, respectively. Application of T_3 + FYM @ 25 t ha^{-1} obtained the highest net returns (₹ 438334 and 402240 ha^{-1}) in potato crop during first and second years, respectively. Thus, organic production of sesame and potato under sesame - potato sequence may be taken as economically viable options.

Keywords: Crop residue, FYM, vermicompost, neem cake, growth, RDF, sesame, potato and economics.

INTRODUCTION

Sesame (*Sesamum indicum* L.) is the vintage oilseed crop cultivated in most of the states of India. This crop is cultivated almost throughout India for its high-quality oil and it has magnificent potential for export. It is known as "the queen of oils". It is cultivated on large area in the states of Maharashtra, Uttar Pradesh, Rajasthan, Orissa, Andhra Pradesh, Madhya Pradesh, Tamil Nadu, West Bengal, Gujarat, Karnataka, Kerala, Bihar, Assam and Punjab and to a limited extent, in Tripura and Himachal Pradesh. It is gaining abundant importance on account of its high economic value as edible oil, protein, calcium, iron and methionine (Gupta *et al*, 1998). The two important reasons for low yield of sesame in our country are found to be low fertility status of soil and non- application or devoid of proper

nutrient management in its production (Teshome, 2016). Potato (*Solanum tuberosum* L.) is an important annual, herbaceous, tuber crop of Solanaceae family that contains all the essential food ingredients required for maintaining proper human health. It is known as "Poor man's friend".

Due to high cost of chemical fertilizers, marginal farmers face problems in cop production to desired level. Therefore, efforts should be made to follow up integrated nutrient management approach for efficient utilization of chemical fertilizer through supplementation with organic manures or altogether organic nutrition of soil. Chemical fertilisers are commonly used in sesame and potato cultivation due to their rapid release of essential elements for the crop, which has some negative effects on phenological character, quality parameters *viz.* oil%, starch% etc. as well as negative effects on soil health, water and the environment. Organic manures are an excellent and balanced source of nutrients that improve soil health and environmental safety in addition to increasing nutrient uptake.

Organic and inorganic fertilizers are important for agricultural sustainability because of their possible beneficial effects on soil properties and long-term soil productivity. Several studies have been conducted to assess the effects of organic and inorganic fertilizers on soil properties and crop yields, and different agronomic and environmental outcomes have been observed depending on the specific agroecosystem (Saha *et al.,* 2008).

Keeping the above facts in view, the present experiment was planned to study the response of organic manures on the sesame and potato under Gwalior region of Madhya Pradesh.

MATERIALS AND METHODS

The present investigation was conducted in two cropping seasons of 2020-21 and 2021-22 at ICAR Central Potato Research Institute – RS, Gwalior (M.P.). Gwalior is located at 26°13' North latitude and 78°14' East longitude and 206 metres above mean sea level. Gwalior lies in the North tract of M.P. enjoying subtropical climate, with extreme hot up to 48°C in summer and minimum temperature as low as 4.0°C during winter season. The annual rainfall ranges between 750 to 800 mm, most of which received from end of June to end of September, with few showers during winter months. The experiment was laid out in Randomized Block Design (RBD) with four replications having 7 treatments. The treatment comprised of T_1- Control (no fertilizer), T_2- 100% RDF NPK (Inorganic fertilizer), T_3- decomposed crop residue @ 25 t ha^{-1} with biofertilizer (*Azotobacter* and PSB), T_4-(T_3 + FYM @ 25 t ha^{-1}), T_5- (T_3 + vermicompost @ 7.5 t ha^{-1}), T_6- (T_3 + neem cake @ 5 t ha^{-1}) and T_7- (100% RDF + FYM @ 25 t ha^{-1}). Observations recorded were number of days taken from sowing to flower and capsule initiation, number of days from the date of sowing to the day of first flowering and capsule formation. The sampled plants were carefully dugged, roots were thoroughly washed under running water, put in labelled envelop bags and taken to the laboratory where the yield attributing characters were recorded at maturity. Yield of crops were calculated from net plot area and converted to per hectare. Net monetary returns (NMR) was calculated by the formula-

NMR (₹ ha^{-1}) = GMR - COC

Where, GMR – Gross monetary return and COC- cost of cultivation

RESULTS AND DISCUSSION

Sesame crop. Yield, yield attributing characters and economics of crop are important index indicating the nutrient availability, its uptake rate and photosynthetic efficiency of the crop which ultimately influences the crop yield. The data of both the years (2020-21 and 2021-22) pertaining to day of flower initiation of sesame as influenced by different nutrient treatments are given in (Table 1 and 2).

Application of nutrients indicated that the treatments exert significant effect on days to flower initiation and 50% flowering. Application of 100% RDF + FYM @ 25 t ha^{-1} recorded numerically maximum days to flower initiation (50.3 & 51.3) during 2020-21 and 2021-22 which was at par with all treatments except control (no fertilizer) and crop residue @ 25 t ha^{-1} + biofertilizer (*Azotobacter* + PSB, @1L ha^{-1} each, respectively). Days to 50% flowering was statistically same during 2020-21. During 2021-22, highest 50% flower (55.9) counted were recorded with T_3 + vermicompost which was at par with 100% RDF NPK, T_3 + FYM @ 25 t ha^{-1} and 100% RDF + FYM @ 25 t ha^{-1}. Different nutrients indicates that the treatment had significant effect on days to capsule initiation and 50% capsule formation. Application of 100% RDF + FYM @ 25 t ha^{-1} recorded numerically maximum days to capsule initiation (64.4 & 65.5) during 2020-21 and 2021-22. During 2020-21, highest number of 50% capsule formation (70.8) was recorded with 100% RDF NPK which was significantly higher than control, crop residue @ 25 t ha^{-1} + Biofertilizer (*Azotobacter* + PSB, @1L ha^{-1} each, respectively) and T_3 + FYM @ 25 t ha^{-1} during 2021-22, 50% capsule formation was highest (71.4) with T3 + vermicompost @ 7.5 t ha^{-1} which was significantly higher than control, crop residue @ 25 t ha^{-1} + biofertilizer (*Azotobacter* + PSB, @1L ha^{-1} each, respectively) and T_3 + neem cake @ 5 t ha^{-1}. However, minimum value of phenological characters were observed under Control treatment during both the years, respectively. It might be due to lesser nutrient availability than other treatments which compelled plants to completes their life cycle quickly. This result is supported by Dambera *et al.* (2021).

Yield attributing characters like capsule length and test weight were found non significant under different nutrient application treatments since capsule length and test weight (1000-seed weight) might be governed by a genetic factor. But capsules per plant and seed per capsule increased significantly with the nutrient management practices.

Table 1: Effect of nutrient management practices on phenological characters of sesame.

Treatments	Flower initiation		50% flowering		Capsule initiation		50% capsule formation	
	2020-21	2021-22	2020-21	2021-22	2020-21	2021-22	2020-21	2021-22
T_1- Control (no fertilizer)	46.4	45.2	50.9	48.7	55.7	54.6	65.4	62.2
T_2- 100% RDF NPK (Inorganic practices)	49.1	50.6	55.2	53.3	63.9	62.7	70.8	69.8
T_3- Crop Residue @ 25 t ha^{-1} + Biofertilizer (*Azotobacter* + PSB, @1L ha^{-1} respectively)	47.8	48.0	51.7	52.4	60.1	57.3	67.8	66.0
T_4- T_3 + FYM @ 25 t ha^{-1}	50.1	49.4	53.6	55.6	61.6	63.9	67.9	69.9
T_5- T_3 + Vermicompost @ 7.5 t ha^{-1}	48.1	50.9	54.1	55.9	62.7	64.3	69.3	71.4
T_6- T_3 + Neem cake @ 5 t ha^{-1}	48.6	49.6	54.3	52.5	62.3	62.1	68.6	67.8
T_7- 100% RDF + FYM @ 25 t ha^{-1}	50.3	51.6	55.7	55.8	64.4	65.5	69.9	70.8
SEm±	**0.82**	**0.95**	**1.37**	**1.10**	**1.03**	**1.11**	**0.94**	**1.05**
CD (P=0.05)	**2.45**	**2.84**	**NS**	**3.28**	**3.06**	**3.32**	**2.82**	**3.12**

Table 2: Effect of nutrient management practices on yield attributes and yield of sesame.

Treatment	Number of capsules $plant^{-1}$		Number of seeds $capsule^{-1}$		capsule length (cm)		Seed yield kg ha^{-1}		Stover yield (kg ha^{-1})		Test weight (g)	
	2020-21	2021-22	2020-21	2021-22	2020-21	2021-22	2020-21	2021-22	2020-21	2021-22	2020-21	2021-22
T_1- Control (no fertilizer)	38.2	45.3	41.9	34.2	2.38	2.62	378	344	1177	1132	2.84	2.91
T_2- 100% RDF NPK (Inorganic practices)	87.9	82.5	68.7	67.8	3.15	2.99	841	786	2607	2541	3.05	3.10
T_3- Crop Residue @ 25 t ha^{-1} + Biofertilizer (*Azotobacter* + PSB, @1L ha^{-1} respectively)	68.3	73.0	49.2	32.3	2.72	2.30	647	581	2011	2008	2.82	2.91
T_4- T_3 + FYM @ 25 t ha^{-1}	75.5	77.3	54.1	51.3	2.62	2.76	709	680	2209	2159	2.86	2.90
T_5- T_3 + Vermicompost @ 7.5 t ha^{-1}	76.9	72.0	56.6	48.6	3.08	2.66	800	752	2504	2270	2.92	2.80
T_6- T_3 + Neem cake @ 5 t ha^{-1}	71.6	70.8	60.3	49.6	2.81	2.57	755	761	2363	2417	3.05	2.98
T_7- 100% RDF + FYM @ 25 t ha^{-1}	92.4	83.5	72.4	66.0	3.49	2.83	944	870	3013	2980	3.01	2.99
SEm±	**1.22**	**2.09**	**1.19**	**2.74**	**0.239**	**0.165**	**7.7**	**14.4**	**47.1**	**68.2**	**0.066**	**0.065**
CD (P=0.05)	**3.65**	**6.25**	**3.55**	**8.16**	**NS**	**NS**	**23.0**	**42.8**	**140.6**	**203.6**	**NS**	**NS**

Among the nutrient management treatments, capsules $plant^{-1}$ (92.4 and 83.5) and seed $capsule^{-1}$ (72.4) were significantly higher with 100% RDF + FYM @ 25 t ha^{-1} than all other treatments during 2020-21 and 2021-22, respectively. During 2021-22 highest seed $capsule^{-1}$ (67.8) were recorded with 100% RDF NPK which was statistically same with 100% RDF + FYM @ 25 t ha^{-1}. Application of organic and inorganic fertilizers produced healthy plants by providing stress free environment for the growth and development of crop compared to other nutrient applications.

However, sesame yield was increased appreciably in the treatments receiving 100% RDF + FYM @ 25 t ha^{-1} giving significantly higher stover (3013 and 2980 kg ha^{-1}) and seed yield (944 and 870 kg ha^{-1}), respectively during first and second years (Table 4). The maximum gross returns ₹ 113041 ha^{-1} was recorded under T_3 + vermicompost @ 7.5 t ha^{-1} during 2020-21 which was significantly higher than all other treatments. Application of T_3 + neem cake @ 5 t ha^{-1} recorded maximum gross return (₹ 107536 ha^{-1}) during 2021-22 and which was significantly higher than all other treatments except T_3 + vermicompost @ 7.5 t ha^{-1}. However, maximum net returns (₹ 53144 and 44360 ha^{-1}) were noted under crop residue @ 25 t ha^{-1} + biofertilizer (*Azotobacter* + PSB, @ 1 l ha^{-1} respectively) during 2020-21 and 2021-22, respectively which were significantly higher than all other treatments. Whereas, minimum gross and net returns were recorded under control and T_3 + Neem cake @ 5 t ha^{-1}, respectively during both the years due to lower production of seed yield as compared to other treatments. Similar results were found by Ahirwar *et al.* (2017); Lakhran *et al.* (2015); Chakraborty *et al.* (2021).

Table 3: Effect of nutrient management practices on yield attributes and yield of potato.

Treatments	Tuber fresh weight plant^{-1} (g)		Tuber dry weight plant^{-1}(g)		Tuber number plant $^{-1}$		Tuber yield (t ha $^{-1}$)		Harvest index (%)	
	2020-21	2021-22	2020-21	2021-22	2020-21	2021-22	2020-21	2021-22	2020-21	2021-22
T_1- Control (no fertilizer)	252.7	244.3	43.3	40.6	6.42	5.81	20.5	21.9	82.4	81.9
T_2- 100% RDF NPK (Inorganic practices)	483.9	474.0	99.1	90.3	11.14	9.05	39.3	42.8	77.3	78.9
T_3- Crop Residue @ 25 t ha^{-1} + Biofertilizer (Azotobacter + PSB, @1L ha^{-1} respectively)	342.0	358.9	64.9	68.4	8.04	6.66	28.2	26.3	80.6	83.2
T_4- T_3 + FYM @ 25 t ha^{-1}	418.5	412.7	76.2	80.2	10.37	7.93	34.6	32.3	80.2	83.3
T_5- T_3 + Vermicompost @ 7.5 t ha^{-1}	408.0	401.2	74.0	76.7	9.84	7.57	30.5	27.2	80.8	82.6
T_6- T_3 + Neem cake @ 5 t ha^{-1}	391.2	387.2	69.6	73.8	8.68	6.93	29.7	28.7	84.5	81.7
T_7- 100% RDF + FYM @ 25 t ha^{-1}	522.9	508.2	103.2	97.4	12.13	10.45	44.2	47.2	73.7	74.9
SEm±	**10.17**	**8.29**	**1.78**	**2.08**	**0.601**	**0.936**	**1.03**	**1.49**	**1.55**	**1.48**
CD (P=0.05)	**30.35**	**24.75**	**5.31**	**6.22**	**1.793**	**2.793**	**3.07**	**4.44**	**4.64**	**4.43**

Table 4: Effect of nutrient management practices on economics of sesame.

Treatments	Cost of cultivation (₹ ha^{-1})		Gross monetary return (₹ ha^{-1})		Net monetary return (₹ ha^{-1})	
	2020-2021	2021-2022	2020-21	2021-22	2020-21	2021-22
T_1- Control (no fertilizer)	21050	21050	53317	48669	32267	27619
T_2- 100% RDF NPK (Inorganic practices)	25514	25514	62864	62510	37350	36996
T_3- Crop Residue @ 25 t ha^{-1} + Biofertilizer (Azotobacter + PSB, @1L ha^{-1} respectively)	38150	38150	91294	82510	53144	44360
T_4- T_3 + FYM @ 25 t ha^{-1}	63150	63150	100133	96075	36983	32925
T_5- T_3 + Vermicompost @ 7.5 t ha^{-1}	98150	98150	113041	106000	14891	7850
T_6- T_3 + Neem cake @ 5 t ha^{-1}	113150	113150	106685	107536	-6465	-5614
T_7- 100% RDF + FYM @ 25 t ha^{-1}	50514	50514	70702	69553	20188	19039
SEm±	-	-	**1021**	**1892**	**1021**	**1892**
CD (P=0.05)	-	-	**3046**	**5645**	**3046**	**5645**

Table 5: Effect of nutrient management practices on economics of potato.

Treatment	Cost of cultivation (₹ ha^{-1})		Gross monetary return (₹ ha^{-1})		Net monetary return (₹ ha^{-1})	
	2020-21	2021-22	2020-21	2021-22	2020-21	2021-22
T_1- Control (no fertilizer)	100300	99300	322463	345584	222163	246284
T_2- 100% RDF NPK (Inorganic practices)	114221	113221	448877	488800	334656	375580
T_3- Crop Residue @ 25 t ha^{-1} + Biofertilizer (Azotobacter + PSB, @1L ha^{-1} respectively)	119900	118900	465610	431860	345710	312960
T_4- T_3 + FYM @ 25 t ha^{-1}	144900	143900	583234	546140	438334	402240
T_5- T_3 + Vermicompost @ 7.5 t ha^{-1}	179900	178900	505440	457117	325540	278217
T_6- T_3 + Neem cake @ 5 t ha^{-1}	194900	193900	483385	466422	288485	272522
T_7- 100% RDF + FYM @ 25 t ha^{-1}	139221	138221	503062	533495	363842	395274
SEm±	-	-	**14637**	**18022**	**14637**	**18022**
CD (P=0.05)	-	-	**43678**	**53776**	**43678**	**53776**

Potato crop. Application of 100% RDF + FYM @ 25 t ha^{-1} gave significantly higher yield attributing characters *viz.,* tuber plant^{-1} (12.13 and 10.45), tuber fresh weight plant^{-1} (522.9 and 508.2 g) and tuber dry weight plant^{-1} (103.2 and 97.4 g) during first and second years, respectively at maturity. These values were significantly higher than all other treatments during both the years. This result is also supported by Mohammed *et al.* (2018); Singh *et al.* (2018); Shubha *et al.* (2018). Application of 100% RDF + FYM @ 25 t ha^{-1} recorded significantly higher tuber yield (44.2 and 47.2 t ha^{-1}, respectively) during both the years (2020-21 and 2021-22) compared to rest of the treatments. This may be due to higher and balanced availability of essential nutrients to crop plants owing to reduction in the loses of applied nutrients through FYM. This resulted in balanced nutrients supply and beneficial effect of FYM in increasing the availability of various

macro and micronutrients in soil (Hashim, 2014). However, minimum value of yield and yield attributing characters were observed under control (no fertilizer) treatment during both the years (2020-21 and 2021-22). This result is supported by Mohanbabu *et al.* (2021).

Application of T_3 + neem cake @ 5 t ha^{-1} gave higher value of harvest index (84.5) during 2020-21 which was significantly higher over 100% RDF NPK and 100% RDF NPK + FYM @ 25 t ha^{-1}. Application of T_3 + FYM @ 25 t ha^{-1} gave higher value of harvest index (83.3) during 2021-22 which was significantly higher than 100% RDF + FYM @ 25 t ha^{-1}. This result supported by Narayan *et al.* (2013). The maximum gross returns (₹ 583234 and 546140 ha^{-1}) and net returns (₹ 438334 and 402240 ha^{-1}) were noted under T3 + FYM @ 25 t ha^{-1} during 2020-21 and 2021-22, respectively which was significantly higher than all other treatments during 2020-21. However, during 2021-22 net return was statistically same with 100% RDF NPK and 100% RDF NPK + FYM @ 25 t ha^{-1}. Whereas, it was minimum under control treatment during both the years due to lower production of potato tuber yield as compared to other treatments (Table 5). Similarly, results were found and supported by Yadav *et al.* (2017); Mukhopadhyay *et al.* (2021).

CONCLUSION

It may be concluded that application of 100% RDF + FYM @ 25 t ha^{-1} was noted superior phenological, yield attributes and yield resulting in higher remuneration for sesame and potato crops in sesame - potato sequence.

FUTURE SCOPE

This study for comparing best organic option with inorganic treatments. After completing 2 or 3 years of cycle only then it's possible to get significant residual and cumulative effect from this cropping system. Its basic purpose to enhance the soil organic carbon. The present soil organic carbon less then equal 0.3% but for better organic result, this needed to be raised up to 1%.

Acknowledgement. This is part of the corresponding author's Ph.D. thesis work at scientist Dr. Ekta Joshi RVSKVV, Gwalior (M.P.) and co- advisor Dr. S.P. Singh (Principle scientist, ICAR-CPRI-RS, Gwalior) I extend my sincere thanks to my parents, advisory committee and to my professors for giving me proper guidance throughout the course of study. I am highly grateful of research facilities provided by the ICAR- Central potato research institute- RS, Gwalior and college of Agriculture, RVSKVV, Gwalior (M.P.).

Conflict of Interest. None.

REFERENCES

Ahirwar, K., Panda, S. and Jyotishi, A. (2017). Optimisation of sesame (*Sesamum indicum* L.) production through integrated nutrient management. *International journal of current microbiology and applied science, 6*(11): 1701-1707.

Chakraborty, P., Das, Bairagya M., Sarkar, S., Gulati, J. M. L., Santra, G. H., Nayak, N. and Sahoo, B. K. (2021). Effect of irrigation and nutrient management on summer sesame (*Sesamum indicum* L.). *International journal of current microbiology and applied science, 10*(10): 212-220.

Dambera, M., Sangma, Longkumar, L.T., Singh, A.P. and Virosanuo, S. (2021). Effect of planting density and integrated nutrient management in sesame. *Agriculture science digest*, D- 5247: 1-6.

Gupta, S.K., Yadava, T.P., Parkash, K., Thakral, N.K. and Kumar, P. (1998). Influence of date of sowing on oil and fatty acid composition in sesame (*Sesamaum indicum* L.). *Annals of Biology, 14*: 67-68.

Hashim, M. (2014). Influence of crop residue mixed farm yard manure and fertilizer combinations on productivity and rhizospheric environment in maize (*Zea mays* L.) - wheat (*Triticum aestivum* L.) cropping system. Ph. D. thesis submitted to IARI, New Delhi.

Lakhran, H., Sadhu, A.C. and Kumawat, S. (2015). Quality and yield potential of summer sesame (*Sesamum indicum* L.) as influenced by sowing time and nutrient management in middle Gujrat. The Bioscan an *international journal of life sciences, 10*(3): 1409-1411.

Mohammed, A., Mohammed, M., Dechasa, N. and Abduselam, F. (2018). Effects of Integrated Nutrient Management on Potato (*Solanum tuberosum* L.) Growth, Yield and Yield Components at Haramaya Watershed, Eastern Ethiopia. *Open Access Library Journal, 5*: 1-20.

Mohanbabu, Y. N., Dwivedi, D. K., Roy, D. K., Jha, S. and Dwivedi, A. (2021). Integration effect of organic and inorganic nutrient sources on nutrient uptake of potato and soil properties in alluvial plains of Northern Bihar. *Journal of AgriSearch, 8*(1): 12-17.

Mukhopadhyay, K., Ansary, S. H., Saha, S., Debnath, M., Kundu, M.K., Pramanick, S. J., Dhang, S. C. and Islam, S. (2021). Integrated nutrient management in potato with compost made through different bio-degradation processes. *Journal of Experimental Biology and Agricultural Sciences*, (9): 306-313.

Narayan, S., Kanth, R. H., Narayan, R., Khan, F. A., Singh, P. and Rehman, S. U. (2013). Effect of integrated nutrient Management practices on yield of potato. *Potato Journal, 40* (1): 84-86.

Saha, S., Mina, B.L., Gopinath, K.A., Kundu, S. and Gupta, H.S. (2008). Organic amendments affect biochemical properties of a subtemperate soil of the Indian Himalayas. *Nutrient Cycle Agroecosystem, 80*: 233-242.

Shubha, A.S., Srinivasa, V., Shanwaz, A., Anusha, R. B. and Sharavathi, M. B. (2018). Effect of integrated nutrient management on growth and yield attributes in potato (*Solanum tuberosum* L.). *International Journal of Current Microbiology and Applied Sciences, 7*(9): 830-836.

Singh, G., Kumar, A., Singh, G., Kaur, M., Jatana, M.S. and Rani, S. (2018). Effect of Integrated Nutrient Management on Growth and Yield Attributes of Potato (*Solanum tuberosum* L.). *International Journal of Current Microbiology and Applied Sciences, 7*(6): 2051-2056.

Teshome, T. (2016). Effects of Nitrogen, phosphorous (inorganic fertilizers) and Farm Yard Manure on growth, yield, yield components and oil contents of Sesame (*Sesamum indicum* L.) at Assosa district, Beneshangul Gumuze Region, Ethiopia. *Nature and Science, 14*(12): 19-28.

Yadav, S. K., Srivastava, A. K. and Bag, T. K. (2017). Effect of Integration of Fertilizers and FYM on Productivity and Soil Health of Rainfed Potato. *Journal of Agri Search, 4*(1): 23-26.

How to cite this article: Rajendra Patel, S.P. Singh, Ekta Joshi, S.K. Sharma, Vikash Singh, M.J. Sadawarti, V.K. Dua and S. Rawal (2022). Yield Attributes, Yield and Economics of Sesame and Potato under Sesame – Potato Sequence as Influenced by Nutrient Management Practices. *Biological Forum – An International Journal, 14*(4): 164-168.