

International Journal of Agriculture Extension and Social Development

Volume 9; SP-Issue 9; September 2026; Page No. 11-13

Received: 14-06-2026
Accepted: 18-07-2026

Indexed Journal
Peer Reviewed Journal

Farmers' profile characteristics in for mitigating crop damage by wild animals

¹Atram YR, ²Katole RT, ³Lambe SP, ⁴Deshmukh HK, ⁵Vaidkar RD

¹M.Sc. Student, Department of Agricultural Extension Education, Post Graduate Institute, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, Maharashtra, India

^{2,3}Professor (CAS), Department of Agricultural Extension Education, Post Graduate Institute, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, Maharashtra, India

⁴Professor (CAS), College of Forestry, Post Graduate Institute, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, Maharashtra, India

⁵Assistant Professor, Department of Agricultural Economics & Statistics, Post Graduate Institute, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, Maharashtra, India

DOI: <https://doi.org/10.33545/26180723.2026.v9.i9Sa.4222>

Corresponding Author: Atram YR

Abstract

Crop damage caused by wild animals is a significant concern for farmers, particularly in areas located close to wildlife habitats, where recurrent crop raiding can adversely affect agricultural production and farm livelihoods. The present study was undertaken in Patur and Barshitakli talukas of Akola district, Maharashtra, to document the profile characteristics of farmers experiencing crop damage caused by wild animals. An exploratory research design was employed, and 120 respondents from eight purposively selected villages were interviewed using a pre-tested structured interview schedule. The data were analysed using frequency and percentage. The findings revealed that middle-aged farmers and small farmers constituted the major categories with respect to age and landholding, respectively. Secondary education represented the major educational category, while the lowest annual income category predominated among the respondents. Kharif + Rabi was the predominant cropping pattern. The overall source of information and innovativeness of the respondents were predominantly in the medium category. Most farms were located within 2.58 km of the reserve forest, and a water body was available near the majority of the farms. The findings underscore the need for locally appropriate extension interventions and greater awareness of, and access to, institutional support suited to the socio-economic and situational profile of farmers in the prevailing wildlife-agriculture interface.

Keywords: Farmer profile, human-wildlife conflict, crop damage, agricultural extension

1. Introduction

Crop damage by wild animals is an important livelihood concern for farming communities located near forests and wildlife habitats. Crop raiding can directly reduce farm returns and may also increase expenditure on guarding, fencing and other preventive measures. Evidence from India has documented substantial crop losses and economic consequences associated with wild animals. Crop damage by protected wild mammalian herbivores has been reported on the western boundary of the Tadoba-Andhari Tiger Reserve in Central India ^[1], crop and livestock depredation has been documented around the Ranthambore Tiger Reserve ^[4], and animal menace has been shown to increase cultivation costs and contribute to economic losses among farm households ^[8].

Farmers respond to crop-raiding problems through a combination of traditional and modern practices. Human guarding, fences, scare devices, lighting and sound-based deterrents are among the measures reported from different parts of India. Crop-protection measures against wild boar have been evaluated in Kerala ^[7], repelling equipment for wild-boar management in paddy fields has been examined

^[2], and mechanical and biological preventive measures around Bannerghatta National Park have been documented, emphasizing the relevance of training and coordinated support ^[5].

However, farmers' adoption of mitigation measures for wild animals is not determined only by technical performance. Age, education, landholding, income, information access, proximity to wildlife habitat and local resource conditions can shape farmers' ability and willingness to use mitigation measures. Further, a method that is technically useful may not be economically attractive if installation and maintenance costs are high. Therefore, documenting farmer characteristics together with actual adoption patterns and economic performance provides a more complete basis for extension planning.

In Akola district, particularly in villages experiencing recurrent crop damage, location-specific documentation of farmer responses is useful for developing realistic crop-protection recommendations. The present study was therefore undertaken to study the profile characteristics of farmers experiencing crop damage by wild animals in the study area.

2. Materials and Methods

An exploratory research design was used. The study was conducted in Akola district of Maharashtra, with Patur and Barshitakli talukas selected purposively based on the reported number of cases of crop damage by wild animals. Four villages from each selected taluka were purposively selected on the basis of crop-damage incidence, resulting in eight villages. Fifteen farmers were selected from each village through simple random sampling, giving a total sample of 120 farmers. The respondents were farmers who had experienced crop damage by wild animals and were using one or more mitigation measures.

Data were collected through personal interviews using a structured interview schedule. The schedule was pre-tested in a non-sample area to assess clarity, relevance and suitability. Profile variables included age, education, landholding, annual income, cropping pattern, source of information, innovativeness, distance from reserve forest area and availability of a water body near the farm. The study also recorded government schemes and compensation, methods adopted and constraints.

3. Results and Discussion

Farmers' profile characteristics

Table 1 indicates that the middle-age group (35–50 years) constituted the largest proportion of respondents (55.83%),

suggesting that crop damage and its mitigation were mainly experienced by middle-aged farmers. The educational status was predominantly secondary education (8th–10th class), accounting for 37.50 per cent of respondents, indicating that the respondents generally had a basic formal educational background. Small farmers constituted the largest landholding category (42.50%), suggesting that crop damage and mitigation were particularly relevant to farmers with relatively small holdings. The largest proportion of respondents (35.83%) belonged to the low annual income category (up to ₹2,61,743), indicating that economic capacity may be an important consideration in the adoption of mitigation measures. Kharif + Rabi was the predominant cropping pattern (65.00%), indicating that crop damage and its mitigation were relevant across more than one cropping season. The overall source of information was predominantly in the medium category (65.83%), indicating moderate information access among respondents. Similarly, innovativeness was predominantly in the medium category (64.20%), suggesting a moderate tendency towards adopting improved practices. Most respondents (67.50%) had farms located within 2.58 km of the reserve forest boundary, indicating substantial exposure to the wildlife–agriculture interface. A water body was available near the farm for 81.67% of respondents, indicating that such water resources were common in the study area.

Table 1: Distribution of respondents according to profile characteristics of the farmers

Sr. No.	Profile characteristics	Category	Frequency	Percentage
1	Age	Young (up to 35 years)	33	27.50
		Middle (35–50 years)	67	55.83
		Old (above 50 years)	20	16.67
2	Education	Illiterate (No schooling)	0	0.00
		Primary (up to 4th class)	20	16.67
		Middle (5th–7th class)	29	24.16
		Secondary (8th–10th class)	45	37.50
		Higher Secondary (11th–12th class)	16	13.33
		College/University (above 12th class)	10	8.33
3	Landholding	Marginal (up to 1.00 ha)	14	11.67
		Small (1.00–2.00 ha)	51	42.50
		Semi-medium (2.01–4.00 ha)	45	37.50
		Medium (4.00–10.00 ha)	10	8.33
		Large (above 10.00 ha)	0	0.00
4	Annual income (₹)	Up to 2,61,743	43	35.83
		2,61,743–4,44,694	39	32.50
		4,44,694–6,27,645	19	15.83
		6,27,645–8,10,596	9	7.50
		Above 8,10,596	10	8.33
5	Cropping pattern	Kharif only	22	18.33
		Kharif + Rabi	78	65.00
		Kharif + Rabi + Summer	20	16.67
6	Source of information	Low	18	15.00
		Medium	79	65.83
		High	23	19.17
7	Innovativeness	Low	23	19.20
		Medium	77	64.20
		High	20	16.70
8	Distance from reserve forest area	Up to 2.58 km	81	67.50
		2.59–5.05 km	18	15.00
		5.06–7.53 km	11	9.17
		Above 7.53 km	10	8.33
9	Availability of water body near farm	Available	98	81.67
		Not available	22	18.33

Kharif + Rabi was found to be the predominant cropping pattern (65.00%), followed by Kharif-only cultivation (18.33%) and Kharif + Rabi + Summer cultivation (16.67%), indicating that crop damage and its mitigation were relevant across more than one cropping season. Regarding information access, the overall source of information was predominantly in the medium category (65.83%) indicating moderate information access among respondents, consistent with an earlier study [3]. Similarly, innovativeness was medium for nearly two third (64.20%) of respondents pointing to a moderate tendency towards adopting improved practices, similar to earlier findings [6]. Majority of respondents (67.50%) had farms located within 2.58 km of the reserve forest boundary, indicating a substantial wildlife–agriculture interface in the study area, in accordance with earlier findings [1]. A water body was available near the farm for nearly four fifth of (81.67%) of respondents, with wells (41.67%) and streams (29.17%) being the most common sources; its relationship with wildlife occurrence or crop damage was not statistically examined in this study.

4. Conclusion

The study documented the profile characteristics of farmers experiencing crop damage by wild animals in Patur and Barshitakli talukas of Akola district. The predominance of middle-aged, relatively small-holding farmers with secondary-level education and modest annual income indicates that mitigation support should be practical, affordable and suited to farmers' available resources and capacity. The medium levels of information access and innovativeness observed among the majority of respondents suggest that extension approaches relying on demonstration, peer learning and simplified information delivery are likely to be more effective than those assuming high technical readiness. The concentration of farms within a relatively short distance of the reserve forest boundary, together with the widespread availability of water bodies near farms, reflects the strong wildlife–agriculture interface characterising the study area and underscores the continuing relevance of requirement for crop-protection against wild animals. Overall, extension interventions in the study area should be tailored to the socio-economic and situational profile of affected farmers, with particular attention to landholding size, income level, information access and proximity to wildlife habitat, so that mitigation support reaches and is usable by the farmers most exposed to crop damage risk.

References

1. Bayani A, Tiwade D, Dongre A, Dongre AP, Phatak R, Watve M. Assessment of crop damage by protected wild mammalian herbivores on the western boundary of Tadoba-Andhari Tiger Reserve (TATR), Central India. *PLoS One*. 2016;11(4). doi:10.1371/journal.pone.0153854.
2. Gilsha Bai EB, Sumiya KV, Smijisha AS, Arun Kumar KV, Sreelakshmi K, Resmi J, *et al.* Wild boar management in paddy fields using repelling equipment. *J Krishi Vigyan*. 2024;12(2):441-445. doi:10.5958/2349-4433.2024.00077.0.
3. Mathkar AU, Koshti NR, Shambharkar YB, Sadawarte

AK, Nagpure SC. Profile analysis of vegetable growers in Akola district, Maharashtra. *Int J Agric Ext Soc Dev*. 2026;9(6S):177-182.

doi:10.33545/26180723.2026.v9.i6Sc.3795.

4. Meena DC, Meena BS, Garai S, Meena HR, Sankhala G, Chadda A. Crop and livestock depredation by wild animals: the case of Ranthambore Tiger Reserve, India. *Indian J Ext Educ*. 2022;58(4):38-41. doi:10.48165/IJEE.2022.58408.
5. Naik NK, Venkatesh P, Singh DR, Singh A, Jha GK, Sangeetha V, *et al.* Effectiveness of human-wildlife conflict mitigation strategies and preventive measures in Bannerghatta National Park region, Karnataka. *J Community Mobilization Sustain Dev*. 2025;20(1):234-240. doi:10.5958/2231-6736.2025.00036.46.
6. Riya HD, Bhople PP, Koshti NR, Nichal SS, Dangore UT. Profile of soybean growers in Akola district. *Int J Agric Ext Soc Dev*. 2025;8(7):786-790. doi:10.33545/26180723.2025.v8.i7k.2217.
7. Sreeja P, Chellappan M. Evaluation of crop protection measures against wild boar (*Sus scrofa*) damage on Chinese potato in Kerala. *Pest Manag Hortic Ecosyst*. 2017;23(2):133-137.
8. Thakur RK, Walia A, Mehta K, Kumar V, Lal H. Economic assessment of crop damages by animal menace in mid hill regions of Himachal Pradesh. *Indian J Anim Sci*. 2022;92(4):484-491. doi:10.56093/ijans.v92i4.124173.