

Adoption and Perceived Effectiveness of Traditional practices to mitigate human-wild pig conflict situations

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ABSTRACT

Human-wild pig conflict is one of the main threats to farmers as wild pig destroys the growing crops completely. Krishnagiri district of Tamil Nadu was purposefully selected for the study as it ranked first in human-wild pig conflict incidents in Tamil Nadu. Farmers who had at least one wildlife conflict incidence in their lifetime were selected for this study during 2015-16 on adoption and effectiveness of traditional practices to manage human-wild pig conflict situations. Sixty participants were selected using the snow ball sampling and data were collected using semistructured interviews, complemented by free listing techniques, nonspecific prompting and reading back. A total number of nine traditional practices were identified and found that they were adopted at various levels. Further, boundary clearing, using metal cow bells and using shining tapes (100 %) were found to be most effective traditional method followed by fireworks/crackers (75 %), noise making (72.2 %) and scarecrows (69.6 %). Although encouraging, these results require more widespread testing and demonstration to ensure their effectiveness at broader scales.

Keywords: Human-pig conflict, traditional practices, metal cow bells, shining tapes, scarecrows, fireworks

INTRODUCTION

Wild pig (*Sus scrofa*) is the most widely distributed large mammal and distributed in North Africa, Europe and Asia (Rao *et al.*, 2015). The wild pig population is increasing drastically not only due to its prolificacy in breeding but also depletion in the head counts of its predators such as

tiger, leopard, wild dogs, wolf and jackals (Khan *et al.*, 2019). Overabundances of wild pig population, scarcity of food and shrinking natural habitats have compelled the wild pigs to intrude the forest fringe villages and farms. Cutting of forest trees for

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farming and industrial activities often accelerate the humans and wild animals conflicts.

The farmers in such areas have to bear considerable economic loss (Fig.1). Therefore, the farmers resort to different traditional methods to mitigate the intrusion of wild pigs into their farming land. Hence a study was carried out to identify the traditional practices followed by the farmers and also find adoption and perceived effectiveness.

MATERIALS AND METHODS

Among the 38 districts of Tamil Nadu state, this study on adoption and perceived effectiveness of traditional practices to mitigate human-wild pig conflict situations was purposively carried out in Krishnagiri district of Tamil Nadu state during 2015-2016 due to the high incidence of human-wild pig (210 incidents during 2014-15) conflict on the basis of data from Tamil Nadu Forest Department. From the four forest zone blocks of Krishnagiri district, two blocks viz., Denkanikottai and Thally were randomly selected. From these two blocks, six villages were also chosen randomly. Sixty respondents (ten farmers per village) were selected using the snowball technique and data were collected using semi structured interview schedule, complemented by free listing techniques, nonspecific prompting, and reading back. The data was analysed using average and percentage.

RESULTS AND DISCUSSION

A total number of nine traditional practices were identified that include noise-making, fire/smoke producing, manual guarding, traditional fences, scarecrows (Fig.2), boundary clearing, fireworks/crackers, metal cow bells and shining tapes. The results in Table 1 revealed that among the nine chosen traditional methods, fireworks/crackers (66.7 %) ranked first in the adoption of traditional practice to mitigate human-wild pig conflict.

About 63 per cent of the respondents of the study area were manually guarding the crop fields during the harvest time to drive away the intruding wild pig. Similar strategy was followed by the farmers of Mazowe District of Mashonal and Central Province, Zimbabwe (Nyika, 2017). During certain period of high crop vulnerability, mostly male members of the family would take the turns to guard the field crops. They used the different methods to cope with human-wild pig conflict. Farmers tied the metal cow bells and hung them at fence to act as an alarm if a wild pig tried to break through the perimeter fencing. Similar technique was recorded by Graham and Ochieng (2008) to mitigate the human-elephant conflict by the farmers in Laikipia District, Kenya.

Table 1. Adoption and perceived effectiveness of traditional practices to mitigate human-wild pig conflict situations

n=60

S. No.	Traditional practices	Adopters		Non-adopters		Effective		Ineffective	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
1	Noise-making	36	60.0	24	40.0	26	72.2	10	27.8
2	Fire/Smoke	22	36.7	38	63.3	9	40.9	13	59.1

3	Manual Guarding	38	63.3	22	36.7	22	57.9	16	42.1
4	Traditional fences	4	6.7	56	93.3	-	-	4	100.0
5	Scarecrows	23	38.3	37	61.7	16	69.6	7	30.4
6	Boundary Clearing	4	6.7	56	93.3	4	100.0	-	-
7	Fireworks/ Crackers	40	66.7	20	33.3	30	75.0	10	25.0
8	Metal cow bells	4	6.7	56	93.3	4	100.0	-	-
9	Shining tapes	6	10.0	54	90.0	6	100.0	-	-

Use of shining tapes like video/audio tapes had been observed as well established fact that wild pigs were afraid of shining materials which reflect light from far away. Due to this reason, farmers tie audio and video tapes roll all around the crop fields with wooden sticks. During daytime, the tapes glare due to scorching sunlight and in night, they reflect in dark that made the wild pigs frightened to keep them away from the agricultural fields. This is in accordance with the findings of Meena *et al.* (2014) who proved the shining tapes were very successful technique to frighten the blue bulls in Rajsamand district, Rajasthan, India. Moreover, there is a need to develop appropriate extension mix for disseminating the locally relevant ITK through vernacular language targeting the resource poor farm families (Ponnusamy *et al.*, 2017).

Even though using fireworks/crackers ranked first, only 75 per cent of the farmers perceived it to be effective. But cent per cent efficacy was recorded by the farmers practicing boundary clearing, metal cow bells, and shining tapes though these were adopted by 6.7 per cent and 10 per cent farmers respectively. The farmers created noises by various means to frighten the

intruding wild pig herd. Some of the farmers also released dogs during encounter with wild animals. Rao *et al.* (2015) used castor (*Ricinus communis*) as a barrier to reduce the damage caused by wild pig conducted at Agricultural Research Station, Tandur (Telangana state) in the Maize (*Zea mays*) crop. In addition to this, Naik and Basavadarshan (2020) used color sarees to drive the intruding wild pigs and found to be effective at Arjunahalli and surrounding villages which were in the vicinity of the forest, Kanakapura Taluk, and Ramanagara District of Karnataka State.

The losses created by various wild animals to the farmers are given in the table 2. This table clearly depicted that majority (48.30 %) of the elephant conflict respondents experienced losses which was below Rs.10,000 followed by 23.30 per cent of them suffered losses between Rs.25,001- 50,000. The major losses created by the wild pigs on the farmers were recorded in Paddy fields followed by *Ragi*(finger millet). McKeet *et al.* (2020) estimated crop loss due to feral swine of \$272 million for the surveyed set of crops in 12 states in United States.

Table 2. Distribution of losses to crops of human wild pig conflict affected farmers

(N=60)

S. No.	Losses to crops (Rs.)	Number of farmers (Percentage)
1	Below 10000	29 (48.30%)
2	10001-25000	13 (21.70%)
3	25001-50000	14 (23.30%)
4	Above 50000	4(6.70%)

CONCLUSION

Crop depredation by wild pigs is enormous. Hence the farmers use different traditional technologies to mitigate the human-wild pig conflict. The results of the present study indicate that among the different traditional methods used to mitigate Human wild pig conflict, fireworks/cracker, manual guarding and noise making were highly adopted than rest of the traditional methods. But boundary clearing, metal cow bells and shining tapes were found to be highly effective in reducing the wild boar followed by noise making, fireworks/crackers and scarecrows around the crop was promising. Hence proper educational programme may be conducted among the farmers of affected area to popularize the effective traditional methods to mitigate human wild pig conflict through training. Although encouraging, these results require more widespread testing and demonstration to ensure their effectiveness at broader scales.

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Fig.1 Wild pig Trampled field



Fig.2 Scarecrows to drive out intruding wild pigs