

Crop Raiding behaviour of Nilgai, *Boselaphus Tragocamelus* in Shekhawati Region of Thar Desert

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Abstract: Nilgai (*Boselaphus tragocamelus*) caused extensive damage to most agricultural crops. The signs of hoof marks, broken plants, uprooted plants, damaged crop and feeding marks give the indirect evidence of presence of nilgai in crop field from dusk to dawn (Goyal and Rajpurohit, 2000). Nilgai is highly adaptive antelope. This notes is part of the preliminary survey based on the observation and questionnaires of ecology and pest status of nilgai during November 2011 to April 2013 in Shekhawati Region. Animals were followed for regular observation and protocols were recorded for scan, ad libitum sampling (Altman, 1974). One of the dominant female in a herd do inspection the location and enter easily in the crop field. During entering in crop, male stands behind and calves in the mid position. Mostly immature crop damage gains due to feeding and ripe crop damage due to trampling. The herd of nilgai have been observed shifting from one area to another, depending upon the availability of crops.

1. INTRODUCTION

Crop damage by deer, nilgai, blackbuck, wild boar and porcupine has been widely reported from almost all corners of the India (Prater 1980, Majupuria 1982, Schultz 1986 and Rajpurohit, 1988). The nilgai causes extensive damage to agricultural crops; among these

Triticum aestivum (Wheat), *Hordeum vulgare* (Barley), *Cicer arietinum* (Gram), *Brassica campestris* (Mustard), *Pennisetum typhoides* (Bajra), *Sorghum vulgare* (Jowar), *Phaseolus mungo* (Moong), *Cyamopsis tetragonoloba* (Guar) are most preferred. Farmers want to get rid of this unconventional mammalian crop pest. The crop damage by nilgai is large due to their increasing number, deforestation, lack of open vegetation area. The increased population number was reported in crop field in Rajasthan (Rajpurohit and Mohnot, 1997; Goyal and Rajpurohit, 2000).

Nilgai is highly adaptive antelope. Naturally diurnal, it goes for crop raiding in evening and at night (Chauhan and Singh, 1990). Nilgai caused extensive damage to most agricultural crops. The signs of hoof marks, broken plants, uprooted

plants, damaged crop and feeding marks give the indirect evidence of presence of nilgai in crop field from dusk to dawn (Goyal and Rajpurohit, 2000). Nilgai is regarded as a serious mammalian crop pest due to eating less but destroying more by trampling and cause crop damage (Ghosh et al., 1987).

2. MATERIALS AND METHODS

The study area covers some villages of District Jhunjhunu of Shekhawati region of Thar Desert. The study area covers 50 km² with 27° 38' to 28° 31' N latitude and 75° 02' to 76° 06' E longitude.

During the study period extensive survey work was conducted in different villages of Jhunjhunu District. Animals were followed for regular observation and protocols were recorded for scan and ad libitum sampling (Altman, 1974).

3. RESULTS AND DISCUSSION

Nilgai is strictly vegetarian and is a well known herbivore. It often browses on shrubs and small trees and grazes on grasses and herbs (Rajpurohit, 1988). Grasses are preferred components of nilgai diet mostly during and soon after monsoon. Nilgai feed on 91 plant species that included 20 tree, 9 shrub, 12 creeper/straggler, 29 herb and 21 grass species (Sankar 1994).

Nilgai not only depended on crops and grasses totally but also during winter and summer it feed on fallen leaves, fruits and pods of *Zizyphus mauritiana* (Ber), *Prosopis cineraria* (Khejri), *Prosopis juliflora* (Vilayti Babool), *Capparis deciduas* (Ker), fallen flowers of *Butea monosperma* (Palas), *Ticomela undulate* (Rohira), *Acacia nilotica* (Kikar), *Acacia catechu* (kattha) and *Acacia leucophloea* (Raunja), *Salvedora persica* (Mitha jal) and *Anogeissus pendula* (Dhok), *Balanites egyptica* (Hingota).



Nilgai: in a mustard crop field.

One of the dominant female in a herd do inspection of the location and enter easily in the crop field. During entering in the crop field, male stands behind and calves in the mid position. When they entered in the crop, they show absence of the farmer. Nilgai run fast when they smell sulphur of gun or see the cowherd and feral dog. It feed easily with alertness. Nilgai are timid in nature. After eating a bite it saw surrounding, and observe the crop thoroughly. It always feed crop at different site, rather then one place, and does not eat crop during running.

Mostly immature crop damage gains due to feeding and ripe crop damage due to trampling. Receiving the indication of danger nilgai run very fast as tiger and it saw behind after running 400-500 meter. For the protection of crop from nilgai farmers make a man's effigy with the help of pot and shirt. Nilgai does not afraid from effigy but it smell with distance. Nilgai comes near the statue with slow speed. Calves afraid from effigy.

Nilgai use the crop *Brassica compestris* (sarson), *Pennisetum typhoidenum* (bajra), *Cyamopsis tetragonoloba* (guar), *Sorghum vulgare* (jowar), *Gossypium arboretum* (cottan) and seldom *Triticum aestivum* (wheat) or small crops for hiding. Nilgai sits in the crop in the relax mood. When it enter in the crop it sits immediate due to farmers and dog. Generally it sits after standing one hour in the crop. It fell comfortable to rest in crop during day time. Every member of the group sits in a proper distance. During the rest phase Nilgai eat crop less but broke in large number by movement due to presence of ticks and mites on their body as external parasite. Nilgai came out from the crop with alertness and observes surroundings the presence of farmer and any else. When nilgai feels disturbance it change the way. In the open field it think the presence of farmer.

In the open area, group of nilgai sits in the 2-3 patches. They always sits in cross type for the alertness, every member's face in different direction. Dominant male or female aware with standings. When any individual feel the danger, all members became alert due to activity of individual feet movement or rounds its tail. When its feel more danger it erect the tail. All members of group stands due to fear, use to urine and dung pile.

Nilgai always maintain distance from farmer with minimum 100 meter in day time and minimum 50 meter in night. It recognize the farmer and new man. It afraid from new man in comparison of farmer. When nilgai is disturbed during the resting phase, it cause more crop damage due to trampling, rather then crop raiding . One of the dominant female in group goes to a safe place. If place is proper, other member follow him.

The herds of nilgai have been observed shifting from one area to another, depending upon the availability of crops (Goyal and Rajpurohit, 1998). Nilgai migrates in their home range and territory for water and fodder. It drink water on farmer's well. Sometimes it goes to corrals of domestic cattle for the search of water and fodder. The domestic cattle refuse the water and fodder which is used by nilgai. The domestic cattle also reject the grasses grown by farmers, if it is used by nilgai. The main reason of this rejection is smell of saliva of nilgai in grasses, fodder and water. The saliva of the nilgai is harmful for small trees because when it feed the tree, it unable to grow or became backward to develop about one year. The situation of original crop damage seems during harvesting.

It is observed that at the time of danger and food availability is insufficient they easily jump 6-8 feet barbed fencing, stone wall, fencing with high soil and thorny plants as well as passes under the fencing through small hole, and also jumped in length about 10 feet. The decreases movement of Nilgai in crop field is observed during rainy season. The most common protection strategy for farmers is to guard their fields by remaining vigilant during crop season (Chauhan and Singh, 1990).

The data of crop damage by nilgai validate that they are dominant crop predator. Farmers are facing great problem because they do not have any long time permanent and confirm solution to get rid of this unconventional pest.

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