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A Novel Eco-Friendly Repellent Approach for Reducing Human–Wild Boar Conflict in Agriculture

*Mr. S. Vinoth and Dr. B. Guna
Nalanda College of Agriculture, M. R. Palayam, Trichy, India
*Corresponding Author's email: vinothsakthi371@gmail.com

Wild boar (Sus scrofa) has emerged as one of the most destructive vertebrate pests affecting agriculture in India, particularly in forest-fringe and rainfed regions. The species exhibits exceptional adaptability, nocturnal foraging behavior, and high intelligence, enabling it to overcome many conventional crop protection measures. In Tamil Nadu, wild boar depredation causes severe damage to paddy, groundnut, sugarcane, banana, millets, and tuber crops, resulting in significant economic losses, food insecurity, and psychological stress among farming communities. The increasing frequency and intensity of such damage underline the urgent need for effective, non-lethal, and environmentally sustainable crop protection strategies.



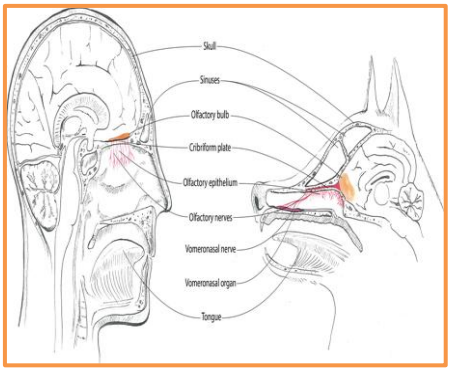
Introduction

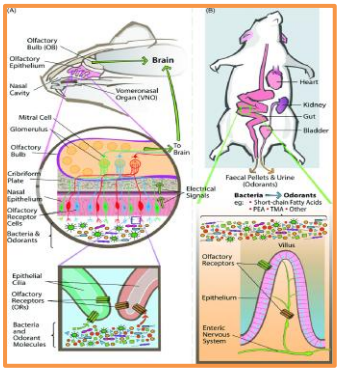
Human–wildlife conflict has intensified in recent decades due to habitat fragmentation, shrinking forest corridors, and agricultural expansion into wildlife landscapes. Conventional methods such as electric fencing, trapping, poisoning, or culling are often costly, legally restricted, ecologically damaging, or socially unacceptable. Consequently, emphasis has shifted toward behavior-modifying repellents that deter animals without causing physical harm. In this context, the Krishi Vigyan Kendra (KVK), Virinjipuram, under Tamil Nadu Agricultural University (TNAU), has developed and promoted an eco-friendly botanical wild boar repellent known as Jaiva Vikarshini.



Scientific Basis of the KVK Virinjipuram Wild Boar Repellent

The scientific basis of the KVK Virinjipuram wild boar repellent lies in the behavioral ecology and sensory biology of Sus scrofa. Wild boars rely predominantly on their highly developed olfactory system to locate food, detect threats, and navigate their surroundings. Their olfactory sensitivity is far superior to that of humans and plays a decisive role in foraging behavior. By exploiting this biological vulnerability, the repellent introduces strong and unfamiliar plant-derived volatile compounds that trigger olfactory overstimulation, discomfort, and fear-associated learning, ultimately leading to avoidance of treated fields.





Nature and Composition of the Repellent

Jaiva Vikarshini is botanical in origin, non-toxic, biodegradable, and safe for humans, livestock, and crops. Although the precise formulation is maintained as an institutional innovation, it is prepared using locally available plant materials rich in pungent and repulsive volatile compounds. The use of indigenous resources ensures affordability, ease of preparation, and suitability for adoption by small and marginal farmers. Importantly, the odor emitted by the formulation is either mild or tolerable to humans, while remaining highly offensive to wild boars due to species-specific olfactory sensitivity.

Method of Application

The repellent is applied using a scientifically designed perimeter-based strategy rather than direct application on crops. The formulation is placed in perforated plastic containers or bottles and hung along the field boundaries at a height of approximately one to one and a half feet above ground level. This arrangement creates an invisible olfactory barrier around the field. When wild boars approach the cultivated area, they encounter the repellent odor before entering, which discourages further movement into the field. A dosage of about 500 ml per acre is recommended, and a single application remains effective for approximately 45 to 50 days under normal weather conditions.

Field Performance and Extension Impact

Field demonstrations conducted by KVK Virinjipuram across several districts of Tamil Nadu revealed significant reductions in crop damage caused by wild boars. Farmers consistently reported near-complete avoidance of treated fields, particularly during critical crop growth

stages. The technology has been successfully extended to neighboring states such as Kerala, Andhra Pradesh, and Puducherry, demonstrating its adaptability across different agro-climatic conditions. The repellent has gained wide acceptance due to its simplicity, low cost, and effectiveness.



Advantages of bio-repellent

From a sustainability perspective, the KVK Virinjipuram wild boar repellent offers several advantages. It does not require electricity or continuous human monitoring, does not injure animals, and complies with wildlife protection regulations. However, its effectiveness may decline under prolonged heavy rainfall due to dilution or rapid volatilization of active compounds, necessitating reapplication. Researchers therefore recommend using the repellent as part of an integrated human–wildlife conflict management approach, combining it with light deterrents, crop guarding, and bio-fencing.

Conclusion

In conclusion, the eco-friendly wild boar repellent developed at KVK Virinjipuram represents a scientifically sound, ethically acceptable, and farmer-centric innovation in vertebrate pest management. By addressing crop depredation through an understanding of animal behavior and sensory biology, the technology promotes peaceful coexistence between agriculture and wildlife while safeguarding farmer livelihoods. Its success highlights the critical role of KVKs in translating scientific knowledge into practical, field-level solutions for sustainable agriculture.

References

1. Tamil Nadu Agricultural University (TNAU). Krishi Vigyan Kendra, Virinjipuram – Extension publications on wild boar management.
2. ICAR. (2019). *Human–Wildlife Conflict Management in Agriculture*. Indian Council of Agricultural Research, New Delhi.
3. FAO. (2018). *Human–Wildlife Conflict and Coexistence*. Food and Agriculture Organization of the United Nations.
4. Geisser, H., & Reyer, H. U. (2004). Efficacy of hunting, fencing, and repellents in reducing wild boar damage. *Journal of Wildlife Management*, 68(4), 939–946.