

## Managing the Menace: Practical Approaches to Control the Giant African Snail in Agriculture

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### INTRODUCTION

The giant African snail (*Achatina fulica*) is a highly invasive molluscan pest that poses a serious threat to agriculture. It thrives in warm, humid climates and has a wide host range, including vegetables, fruits, ornamentals, and plantation crops. In recent times, potential outbreak of this pest has been noticed due to some undesirable agricultural practices like minimum tillage practices and straw retention techniques. In India, the pest has become increasingly problematic due to favourable climatic conditions and a lack of effective natural enemies (Sarma *et al.*, 2015).

**Identification and Biology:** The adult snail is usually around 7-8 cm tall bearing a large conical shell with brown and cream bands. It comes out at night, staying out of sight during the day, tucked away in damp, dark spots. A single snail can lay about 100–200 eggs per clutch with 4-5 clutches per year, leading to rapid multiplication (Bhondave *et al.*, 2024). Hatching viability is about 90%. Adult size is attained in 4 months, but may continue slowly up to one year. They typically live for 3 years.



Fig-1 Giant African snail incidence on banana



Fig-2 Giant African snail incidence on Mulberry leaves



Fig-3 Giant African snail feeding on oilpalm fruitlet

**Regional Scenario:** Andhra Pradesh and Telengana

In Andhra Pradesh and Telengana crops such as bananas, papayas, vegetables, and ornamental plants are frequently infested, particularly during and after the monsoon. The coastal districts, including Visakhapatnam, East Godavari, and Krishna, are especially vulnerable due to the high humidity. In Aswaraopet infestation is seen in all nurseries, oil palm plantations and arecanut. To reduce crop losses, integrated management practices are essential and should be introduced and spread in India. The giant African snail was introduced into India during the colonial period as a potential food source. The swift expansion of this organism was enabled by its adaptability, its ability to reproduce quickly, and the absence of natural enemies. Human activities, including the movement of soil and planting materials, contributed to its extensive spread. Presently, it is recognized as a significant invasive pest impacting Indian agriculture.

Damage is evident in the feeding behaviours of both adult and immature forms, which consume plant tissues, leading to uneven holes, defoliation, and slime contamination. Extensive infestations can culminate in the death of seedlings and a decrease in both the quantity and quality of crop production (Neharkar *et al.*, 2025).

Integrated Pest Management (IPM) requires implementing Field-Level IPM Practices. Consequently, effective management requires integrating diverse strategies.

**Cultural practices:** Cultural practices are used to maintain a consistent plant population, with gap-filling implemented during the early growth stages. Summer ploughing is also used to expose snail eggs to sunlight, which dries them out (Sarma *et al.*, 2015).

Furthermore, fields are dried under direct sunlight to diminish moisture levels (Neharkar *et al.*, 2025). The removal of fallen debris and crop residues, which serve as breeding sites, is also practised. Regular weed removal is undertaken to eliminate potential shelter and alternative hosts. Stubble and rice husk burning are practiced to eradicate both eggs and adult snails. Irrigation is scheduled during daylight hours, given the nocturnal activity patterns of snails (Bhondave *et al.*, 2024). The introduction of ducks into rice

ecosystems is a natural way to reduce snail populations (ICAR, 2018).

**Mechanical Approaches:** Snails are collected and destroyed using attractants such as tapioca and papaya leaves (Selvi *et al.*, 2015). To attract snails, wet jute bags are placed in salt water, and the bags are tied to trunk of orchards keep snails away. Additionally, a mixture of fermented toddy and yeast is used in mud pots buried in the ground with mouth exposed out to catch the snails.

**Physical methods:** involve placing corncobs, coconut husks, or salt-treated endocarps along field edges. Application of abrasive materials such as tobacco dust, neem bark powder, and groundnut husk will damage the snail's soft body and restrict its movement (Raut & Barker, 2002). Use of food baits such as chemical treated over ripe fruits such as papaya and flame proves best eradication practice in heavily infested areas.

**Chemical Methods:** Poison bait using dichlorvos + jaggery + wheat bran formed into small balls (Neharkar *et al.*, 2025). Rice bran (25 kg/ha), combined with jaggery (3 kg), castor (100 g), and 100 g of Thiodicarb, is commonly used in the field as a poison bait technique. Methomyl (Lannate) as an alternative bait. Spraying 1 kg copper sulphate + 1 kg lime in 100 litres of water as a deterrent. Copper Sulphate causes a burning sensation on moist skin of snails. Application of Metaldehyde 4% bait (Snailkill) for effective control (ICAR, 2018).

**Farmer-Friendly Tips:** Monitor fields regularly during the rainy season. Destroy egg masses immediately. Avoid water stagnation. Use integrated methods rather than relying solely on chemicals.

**Future prospectus:** Since *A. fulica* is an alien pest therefore there are limited natural enemies that control this pest. Some predatory beetles, lizards, birds and rats can feed on them. Ducks and chickens can provide effective, long-term control in orchards and vineyards, if an appropriate breed is chosen and properly cared for. Khaki Campbell or Indian runner ducks are best breed to be used in snail control.

Use of predatory snails in *A. fulica* management has also been implicated in the decline of native snails in many countries. Some of the predatory snails which can predate and feed on *A. fulica* include *Euglandina rosea*, *Gonaxis kibweziensis*,

*Gonaxis quadrilateralis*, *Edentulina ovoidea* and *Edentulina affinis*.

### CONCLUSION

The giant African snail is a serious pest that requires timely, integrated management. Adoption of cultural, mechanical, physical, and chemical methods in combination ensures effective control. Farmer awareness and eco-friendly practices are essential for sustainable agriculture and long-term pest management.

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