Spread Prevention & Control of Apple Snail: Country Report Philippines

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Introduction

- It has created a niche of its own in some of the Philippines rice field areas
Some areas are now free of GAS since its the balut industry main feed for their ducks. "Balut" is a Philippine delicacy where an egg with the chick in it is boiled

- Severity of losses due to GAS defers from different rice fields, some areas has no GAS at all so it is not considered as one of the country's major pest.

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Policy makers listed it as one of those pests which must be monitored regularly
Rice Farmers have different perceptions about GAS but majority do not perceive it as major threat to rice production

Patterns of Spread of GAS

Internal spread

- At present the spread is more by way of irrigation

Other factors that contribute to the spread

- Improper disposal of aquatic weeds when cleaning the field and the water pathways
- Improper disposal of leftover water cabbage harvested by farmers for selling

Invasion pathways of GAS

There is no interception as per Plant Quarantine list GAS introduction maybe of the following courses:

International

- Man carrying it live for some purpose like research, food or pet without adequate knowledge on handling
- Export containers
- Irrigation/waterways (adjacent countries)
- Improper disposal of infested containers or plants

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Local

- Mass collection of GAS for feeds without proper handling
- Irrigation/waterways
- Pet for aquarium
- Improper disposal of infested aquatic weeds
- Use of contaminated farm equipments
- Vehicle contaminated with GAS
- Flood

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It is the Department of Environment and Natural Resources who regulates the entry of organism in the country and as of 1988 no GAS was allowed to be imported.
There is no record of entry or interception of GAS in the Philippines as per concerned agency record

Impact of GAS infestation

LEVEL	IMPACTS
Agricultural Ecosystem Level	High but localized
Community Level	Low
Species Level	High
Farm Workers & Health Hazard	Medium due to use of molluscicide by some farmers
Environmental Level	Low
Economic Losses	Varies in different rice fields

Utilization of GAS

•Use as feed for ducks



Fig. 6. Ducks feeding on kuhol before transplanting

Utilization of GAS

•Few uses it as food





Utilization of GAS

• Decomposing GAS use as attractant for rice pest, Rice Bug

• Few use GAS shell powder as ingredient for betel nut

Public Education

In 1988, with the assistance from FAO, eradication campaign was done thru

- Trainings
- Workshops
- Trimedia (print, broadcast,campaigns)
- At present, GAS management is a regular topic in any Integrated Pest Management Trainings,like Farmer Field Schools (FFS), Training of Trainers (TOT) and Training of Specialist (TOS) in Rice

Publication Material for Training





Future Threats of GAS

- GAS is not spreading in the country
Majority of the Farmers are not considering GAS as major rice pest which means infestation level is low and manageable

- Present GAS management is working effectively except for flood prone areas

- Regular inclusion of GAS management topic in Farmer Field Schools and regular monitoring of GAS in dams and waterways as well as issuing a policy by local government on GAS awareness month are the suggestions to prevent spread.

Management Guidelines

Mostly used

- pasteuring of ducks

- maintaining 2-3 cm water deep 4 DAT for easy GAS collection

Most effective

- pasteuring of ducks

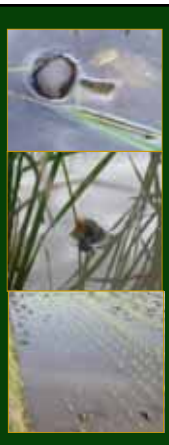
New Paradigm

Based on PhilRice findings:

- Gas most destructive size is from 10mm-40mm in Length
- One GAS (2-3cm in height) per 2sqm can cause a yield reduction of 19%
- Extent of GAS damage depends on snail size, population density and growth stage

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- Gas with shell height of 1.3cm can feed on young plants up to 4wks
- GAS with shell height of 6.5cm can feed up to 9wk old plants
- Density of 1GAS/sqm can reduce rice tillers by 19% and will increase up to 98% with 8GAS/sqm density



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- Red ants and long horn grasshoppers feed on GAS eggs







Knowledge Gaps

Technical

- species verification
- possible cross-breeding between native species and GAS
- size of GAS hatchling for the use of mesh in paddy's field
- effect on biodiversity
- possible resistance to molluskcide



Control Management

- a fungus or virus for GAS control
- promotion of duck raising with GAS as main feed

Policy

- Require all GAS infested areas to raise ducks
- Require all GAS infested area to handle all infested plants, equipments etc accordingly to prevent spread
- Have GAS Awareness month yearly



Lessons Learned

GAS Most Effective Method of Control

As per experience pasteuring ducks in the paddy's is the most effective method of control. In trans planted rice, ducks are release to the paddies at pre-planting, between transplanting and harvesting and at post harvest.

In direct seeded rice, ducks are release to the paddies at pre-seeding and after harvest.



Information Sharing

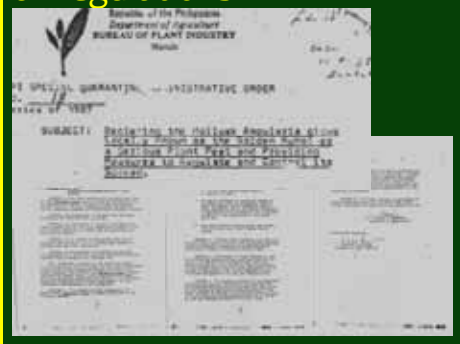
Available Publication on GAS

1. "Golden" Kuhol Management. Crop Protection Division, Bureau of Plant Industry, 692 San Andres, Malate, Manila

2. GAS Management Vol 2 Phil Rice, Munoz, Nueva Ecija



Government Policies & Regulations





Action Plan in Mitigating GAS spread & Infestation

Regular monitoring of containers and other imported materials that may harbor GAS, also rice fields and waterways and to include dams.

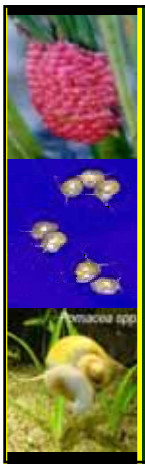
A community-based Pest Scouts group called "Bantay Peste Brigade" are now being established as part of Department of Agriculture Crop Protection Road Map not only to address GAS but also other major agricultural pests.



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International Collaboration

- R and D on GAS resistance to molluskcide
- R and D on botanical molluskcide and effective ,environmentally sound application



Conclusion

GAS is an impulsive pest which means anytime just after a big rain, it will explode. We need to be vigilant to regularly monitor its population and spread.

Regular monitoring, proper handling of infested plants and materials and duck raising are effective in GAS management.

Reference:

- GAS Management Vol 2. –PhilRice
- Intergrated "GOLDEN" KUHOL Management – Bureau of Plant Industry, Malate, Manila