Snail Farming & You

By

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Snail farming provides a cheap source of high quality animal protein for human consumption.

Snail (+ offal) may be used as a source of protein and its shell as calcium salt in animal formulated feeds.

Land snails are known to have some therapeutic values.
It is a geometrical, profit-yielding venture, which requires a relatively meagre capital when compared to other forms of animal farming.

Daily routine in snail farming is comparably an easier, less laborious exercise than those of other animal farming.

Knowing that snails are generally harmless and slow moving, makes the farming a job for all, even to the less privileged (in physique).
Since each land snail is hermaphroditic in nature, the population size and density of a snailery is expected to increase geometrically.

There is less need for vaccination or therapeutic drugs when well managed.

Snail shells may be used in making ornaments, ashtrays, scouring powder and ceramic materials.

Both the shell and the faecal droppings may be used in fertilizer production.
TYPES OF EDIBLE LAND SNAILS

- **Achachatina species**
  - Achachatina marginata
  - Achachatina ventricosa
  - Achachatina degneri

- **Achatina species**
  - Achatina achatina
  - Achatina fulica

- **Cepaea species**
  - Cepaea nemoralis
  - Cepaea hortensis

- **Helix species**
  - Helix pomatia
  - Helix aspera

- **Partula species**

- **Otala species**

- **Theba species**

- **Limicolaria species**

- **Macrochilamys species**
IDENTIFICATION OF AFRICAN GIANT SNAILS

Achatina fulica

Achatina achatina

Achatina marginata
PARTS OF AN AFRICAN GIANT SNAIL

- Body
- Tentacle
- Mouth Position
- Shell
- Foot
LIFE CYCLE OF AFRICAN GIANT SNAIL

**KEY:**

- → Favourable condition.
- ----> Unfavourable condition.

HIBERNATION ± AESTIVATION

(Life Cycle Chart - African Giant Land Snails)

- Egg (10 to 40 days)
- Hatchling
- Juvenile
- Matured Snail (1 to 2 years)
- Full-grown Snail (2 to 3 months)
- Old Snail

--±-- ±
MATING IN PROGRESS
A. MARGINATA & A. FULICA EGGS
IMPROVISED SNAIL INCUBATOR
SNAIL HATCHLINGS

A. fulica Hatchling

A. marginata Hatchling
GIANT SNAIL FAMILY
TWO-DAYS OLD EPIPHRAGM
Choice Of Material And Design Of Pen

• The initial capital at hand.
• The purpose of setting it up — to keep snails as pets, hobby, for prestige, research or commercial purpose.
• The quantity of snails to stock and intensity of farming.
• The site available for pen erection.
• Types and prevalence of pests and predators within the selected site.
• The climatic condition / geographical location.
• Security of the area.
• The owner’s taste.
Paddock System
Closed Paddock System of 500 Adult Snail Capacity
PADDOCK WATERING SYSTEM

SURFACE, DOME-SHAPED, IRON-FRAMED, CLOSE TWIN PADDock WITH TWIN-FLAP AND SHOWER

SURFACE, GOAL-POST SHAPED CLOSE PADDock WITH TOP SHOWER
## COMPARISON BETWEEN ‘CLOSE’ AND ‘OPEN’ PADDOCKS

<table>
<thead>
<tr>
<th>PARAMETERS</th>
<th>CLOSE PADDOCK SYSTEM</th>
<th>OPEN PADDOCK SYSTEM</th>
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<tbody>
<tr>
<td>Construction cost</td>
<td>high</td>
<td>low</td>
</tr>
<tr>
<td>Wall height</td>
<td>high</td>
<td>low</td>
</tr>
<tr>
<td>Energy conservation</td>
<td>poor/fair</td>
<td>good</td>
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<tr>
<td>Pests/predators screening</td>
<td>effective</td>
<td>less effective</td>
</tr>
<tr>
<td>Security</td>
<td>good</td>
<td>fair</td>
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<tr>
<td>Use of flap(s)</td>
<td>may be absent</td>
<td>present</td>
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</tbody>
</table>
INTERIOR OF A WELL GRASSED Paddock
SURFACE, WOODEN-FRAMED SINGLE CAGE
SURFACE, ALUMINIUM-FRAMED SINGLE CAGE
A FORMAT FOR SETTING UP A CAGE INTERIOR

Feed Trough

Plants

Water Troughs

Net Base ± Soil

Feed Trough
FEEDS & FEEDING

- Plants – Fruits, Leaves & other plant parts.
- Animals
- Farm Products, By-products & Wastes
- Formulated Feeds
- Drinks
- Feed Combinations
THE DIGESTIVE SYSTEM
SOME EDIBLE FRUITS
SOME EDIBLE LEAVES / WEEDS
USE OF HOME WASTES
DINNING & WINING
A well balanced concentrate may be served, though expensive.

Plant leaves + fruits (waste fruits from market) to supplement + restaurant residues. Restaurant wastes may be obtained cheap, processed and kept till when needed.

Formulated feed + processed carcass + fruits. The carcass — well-processed insects (harvested flying termites), poultry birds’ offal or tender meat residue from hotels.
Snailery Management

Host
- Genetic Status
- Physiological Status
- Flora

Facilities
- Design
- Management
- Microbial Load
- Handling
- Stocking Density

Environment
- Soil Properties
- Weather
- Snailery Management
- Microbial Load

Feed
- Quantity
- Feeding Technique
- Microbial Load
- Quality

Snail Health

Snailery Management
SNAILERY HYGIENE
SNAIL EGG & HATCHLING MANAGEMENT

IMPROVISED SNAIL INCUBATOR
## Record Keeping

### Pen identity / number of starting stock$

<table>
<thead>
<tr>
<th>Date</th>
<th>Feed(s) served</th>
<th>No of E.C.</th>
<th>No of E picked</th>
<th>No of H picked</th>
<th>M</th>
<th>Observations</th>
</tr>
</thead>
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</table>

Pen identity = pen number + layer number (when using a tiered cage system e.g. 1A.

E = Egg  
H = Hatchling  
M = mortality  
E.C. = Egg clutches found.
Relationship between Environmental Stressor & Snail Health

- **Direction of flow**: Stressor → Healthy Snail → Poor growth → No reproduction → Opportunistic Infection → Death

**Disease Flow Chart**

- **Exposure** (Processing)
- **Infection** (Extension)
- **Disease** (Effect)
- **Reduced Productivity**

**Prevention** → **Control**
Disease Conditions.

• Stress Related Challenges – transport in air-tight containers, insects, weather, poor management, continuous irritation from pests/irritants, exposure to sun etc.

• Cross Infection – from wild snails

• Harsh Weather

• Cannibalism
Disease Conditions (contd).

- Poor Growth / Dry Season
- Poor Egg Hatchability
- Egg Spoilage
- Cessation Of Egg Production
- Chemical Poisoning
- Poor Pen Construction / Water logged snailery
Socio-Economics of Snail Farming

- **Food**
  - Meat
  - Food drink
  - Snacks

- **Commercial venture**
  - Farming / Production
  - Snail processing and packaging
  - Live snail & snail product marketing – local & export

- **Minimal (routine) management / Ease of practice**
Medicinal values

- Reproduction - Conception / Foetal development etc
- Haemopoiesis
- Circulatory related problems e.g. hypertension, migraine
- Haemostasis – circumcision, haematoma
- Eye defect – Glaucoma
- Ear defect – otitis media?
- Facial & skin treatment – including scar management?
- Others – Some kidney & Liver related problems
• Starve for about 24hrs.
• Add a small lump of alum or other astringents into a covered bucket of hot water (>70ºc).
• Transfer snails into the water & cover for a min.
• Decant the resulting dirty water.
• Cool under running tap.
• Easily shake off each snail from its shell into a bowel of clean water.
• Remove the offal & rinse the meat in a clean water.
• Ready for immediate use
• Refrigerate or packaged for commercial purpose.
Why Product Packaging

- To improve product presentation
- To increase product acceptability
- To increase product shelf-life
- Saves buyers time
PACKAGING PRODUCTS

• The Edible Flesh
  • ‘Wet’ meat in well designed, labelled packs
  • Spiced snail product – sticked snail
  • Snail barbecue – snail ‘suya’
  • Canned snail
  • Bottled snail spice

• The Offal
  • Snail meal

• The Haemolymph
  • Pharmaceutical product packaging

• Calcium source
SNAIL PRODUCTION, PRODUCTS & SALES’ CHART

Feed Materials

- Feed Management
  - Faecal Waste

Snail Seed / Parent Stock

- Housing

Snail Production

- Farmers
  - Snail Sales
- Industry
  - Processing
    - Marketing
      - Snail Products
      - By-Products
      - Wastes
ABILITY TO MARKET A PRODUCT

- Identifying the need for such product, and its relevance to a group of the prospective clients.
- How appealing the product and its packaging are.
- The socio-economic values of the product.
- What makes it better than other products of its kind.
- And, of course, the commodity price.
• Sales of live snails.
• Supply of live or processed, packaged & refrigerated snails to restaurants, stores, hotels & for corporate parties.
• Sales of value added products e.g. canned snail-meat, spiced snail, barbecue & pepper soup.
• Processed offal may be supplied as snail meal to feed millers for animal use – animal protein source.
• Shells may be sold to ceramic industries & feed millers in place of oyster shell.
• The bluish body fluid may be processed & patent for both social and medical use.
Snail Production

- Snails
  - Live Snails
  - Dressed Snails
  - ‘Point-and-kill’
  - Dried Snails

- Value-Added Products
  - Spiced Snails
  - Snail Barbecue
  - Stick Snail
  - Canned Snails
  - Snail Sauce
  - Snail-pepper Soup
  - Snail Pie / Snacks
  - Pharmaceuticals e.g. eye & ear drops

- Waste Materials
  - Offal
  - Shell
  - Faeces
    - Agro-byproducts e.g. snail meal, Ca^{2+} source
    - Fertilizers
    - Decorative
    - Accessories – button, tie-clip, cufflink etc.
Hotels
Restaurants
Stores and super-markets
Market traders
Corporate gatherings such as wedding ceremony, end of year party, graduation party e.t.c.
Home supplies – on request
Snail products and by-products exportation
Questions

- If you are to farm snail, what species of land snail will you farm and why?

- If some of your snails are seen with epiphragm, what does this mean and what should be done?

- How can a busy businessman possibly farm snails in commercial quantity within his 1 plot OR ten acres of land?

- Explore the various techniques at your disposal that will help in attraction buyers for your wares, going by the situation within your arena.