

The Agouti
[*Dasyprocta leporina*,
***D. aguti*]**

Aryann's Questions on the
Agouti and
Some Notes on How to set up
an intensive Agouti Production
System

By:

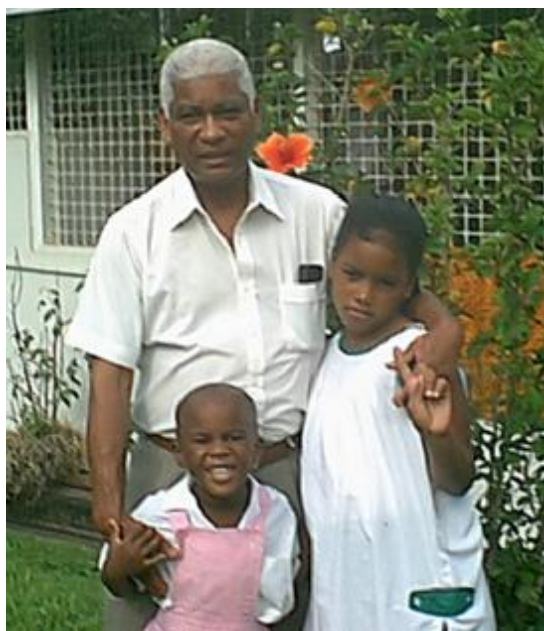
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ARYANN'S QUESTIONS ON THE AGOUTI



Picture 1 : Agouti (*Dasyprocta leporina*) Breeding Colonies at Wildlife Farmers in Trinidad and Tobago, W.I., showing the different colour phenotypes (external features)



Picture 2: Grandpa Douglas, Anais Garcia and Aryann Garcia at right

ARYANN'S QUESTIONS ON THE AGOUTI [*Dasyprocta leporina*, *D. aguti*]

These are the questions that a nine year old girl [Aryann Garcia, page 8] asked about the Agouti. It is also felt that after you have read this document you may want to rear some Agouti at your school in the same way as you rear rabbits.

What type of animal is the Agouti?

It is a medium sized Rodent, i.e. it is a member of the animal family to which rats belong.

Where is it found?

The Agouti lives in a great variety of habitats, from humid tropical forests to fairly dry scrub country. It usually sleeps in the day and goes in search for food at night.

What is the color of the Agouti?

The Agouti has the following colors, brownish black, golden brown, white [yes white], brownish black or golden brown with white feet and chests.

What ways can be used to catch an Agouti?

An Agouti can be hand caught if it is very young, or it can be caught using a strong net, or using a bait trap.

Do these animals grow continuously?

No. They first grow very rapidly in the first eight weeks of their life. At around eight weeks they are taken away from their mommies and so they get no more milk. This is called weaning. They then continue to grow slowly up to about four or five months. Between five months to one year they then grow slowly.

Does it bite or is it dangerous?

Yes it will bite you if it does not know you or is afraid of you. It has very sharp teeth, called incisors, which all rodents and rats have. These teeth grow continuously and can work as a chisel. It is not poisonous and if the animal is obtained when quite young it can become fairly tame if handled and cared for on a daily basis.

How does it make its young and how many does it make?

The Agouti makes its young in a squatting position. The animal makes between 1 to 4 young at a time. But usually it makes about 2 young, 2 to 3 times for the year.

Where does it make its nest or where does it live?

Agoutis can be found from sea level up to elevations of at least 2500m (on top of mountains that are not too high and cold). The agoutis were also described as diurnal (meaning that they go about their business early in the morning and late in the afternoon when it is cool). They live in marshy woods near lowland rivers, as well as in the dry forests, on grassy riverbanks, in dense thickets, and in open savannahs and fields. They sometimes dig burrows under rocks, between roots of trees, or in sloping banks. They would also use hollow logs, holes in trees, stumps or caves. Nest chambers are sometimes made with a scanty cover of leaves, twigs, roots, and hairs. They can be found in the forest, open fields, cultivated areas or even in backyards.

How does it eat?

The agouti eats by holding its food with its front paws in a sitting position.

What does it eat?

It eats any type of edible fruit. It eats both the pulp or the nice part of the fruit as well as the seeds of the fruit. It will also eat roti or bread and vegetable peelings from the kitchen. It likes whole fruits with the seeds in it, as it will also eat the seeds.

Where does it eat?

It eats anywhere it is comfortable. It sometimes bury its food and recover it when it is hungry.

When does it eat?

This animal is a diurnal animal i.e. it is active in the early morning and in the late evening. So that it searches for food at these times. However, in captivity, the animal tend to eat whenever you place a good meal for them.

How is its digestive system made up?

The Agouti has a simple stomach like that of humans, a very long small intestine [about 7 meters or about 21 feet long] and a very large cecum [equal to our appendix]. However, their cecum functions but our appendix does not.

What is the Life Cycle of the Agouti?

The life cycle of the Agouti is very simple. The adults are male and female and they make young males and females which grow up to be adult males and females.

Does it get sick?

The Agouti seldom gets sick. Its main health problem is wounds due to fighting either among adults or between aggressive males and younger animals.

When it gets sick what could we do?

When the wounds develop all you have to do is to attempt to clean them or to prevent the screw worm flies from laying their eggs in their wounds. These could first be cleaned with a mixture of two teaspoons of bicarbonate of soda or Epson salts in one litre warm water. The wounds should be washed twice per day and apply "Negasunt" powder or any anti screw worm treatment.

Can this animal be a pet?

Yes it may make a good pet but you must get it when it is very young.

Can this animal be used as food?

Most certainly YES!!! That is the reason why it is hunted by hunters, even illegally outside of the hunting season.

What is the meat of the Agouti called?

The people in the countryside in Trinidad and Tobago call the agouti meat “**gouti**”. But my daddy said that Mr. Harish Coolman in 2004 invented the name “**dasagu**”. Both names sound nice.

How does it sleep?

Agoutis usually sleep on their belly with their front and back feet tucked under them.

In what year was the Agouti discovered?

The Agouti is a mammal and a rodent native to Central America [from Mexico], the Caribbean and South America [down to Brazil]. It has been around for a very long time and has been an important source of meat for the native Indians long before Christopher Columbus came to the Caribbean.

Why does it have such a complicated name?

The Agouti's scientific name is *Dasyprocta aguti* or *Dasyprocta leporina*. The scientific name of an animal is made up of two main parts and these are the "Genus" and the "Species". Sometimes those scientists who are responsible for giving the scientific names to animals [animal taxonomists] cannot always all agree and they would give an animal a Genus and Subgenus and / a species and Subspecies. Different animals with the same species name means that they would be able to reproduce if cross-bred and the offspring produced would be fertile.

For the Agouti the breakdown of the scientific name is as follows:

Genus: *Dasyprocta* **Species:** *aguti* or *leporina*

Scientific names are either written in italics (*Dasyprocta leporina*) or in plain text and underlined (Dasyprocta leporina). The genus begins with a capital letter and the species begins with a common letter.

The reason for using scientific names is so that people all over the world who speak different languages when discussing an animal can all be sure of exactly which type of animal they are talking about and there would be no confusion.

What is a Mommy Agouti called?

An “Agujen”.

What is a Daddy Agouti called?

An “Agujoe”.

What is a very young Agouti called?

An “Agusuckling”.

What is a mommy Agouti called when she is young?

A “Aguyoungjen”.

What is a daddy Agouti called when he is young?

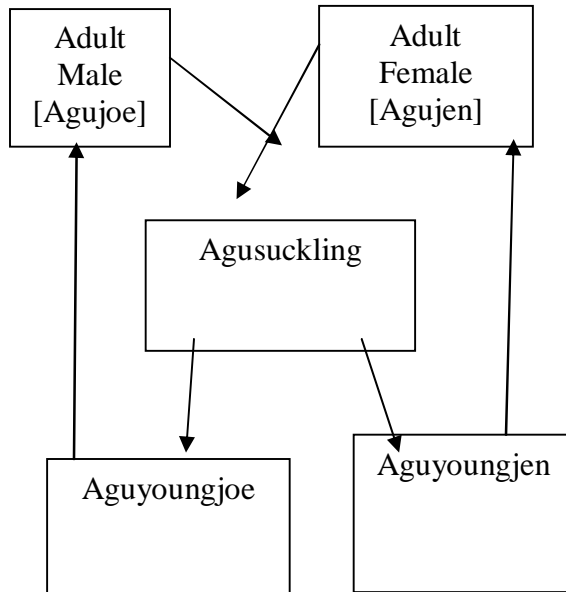
A "Aguyoungjoe".

THE OBJECTIVES OF THE AGOUTI PRODUCTION SYSTEM

In order to develop your Agouti production system you must first begin with the end in mind, i.e. what are the objectives of your production system and what products or animals are you going to sell. This would determine what you do.

THE LIFE CYCLE OF THE AGOUTI

Figure 1: The Life Cycle of the Agouti



THE PHYSIOLOGICAL STATES OF THE AGOUTI

Breeding Females [Agujen]

Breeding Males [Agujoe]

Suckling Young Agouti [Agusuckling]

Young Growing Post Weaning but Sexually Immature Females [Aguyoungjen]

Young Growing Post Weaning but Sexually Immature Males [Aguyoungjoe]

Sexually Mature Females [Replacement Agujen]

Sexually Mature Males [Replacement Agujoe]

PRODUCTION UNITS

Unit 1: Breeding Unit [Group Housing]

Breeding Females [Agujen]

Breeding Males [Agujoe]

Suckling Young Agouti [Agusuckling]

Ratio of Agujoe: Agujen = 1:5 to 1: 10

Unit 2: Grow Out Unit [Group Housing]

Young Growing Post Weaning but Sexually Immature Females [Aguyoungjen]

Young Growing Post Weaning but Sexually Immature Males [Aguyoungjoe]

Unit 3: Replacement Females Unit [Group Housing]

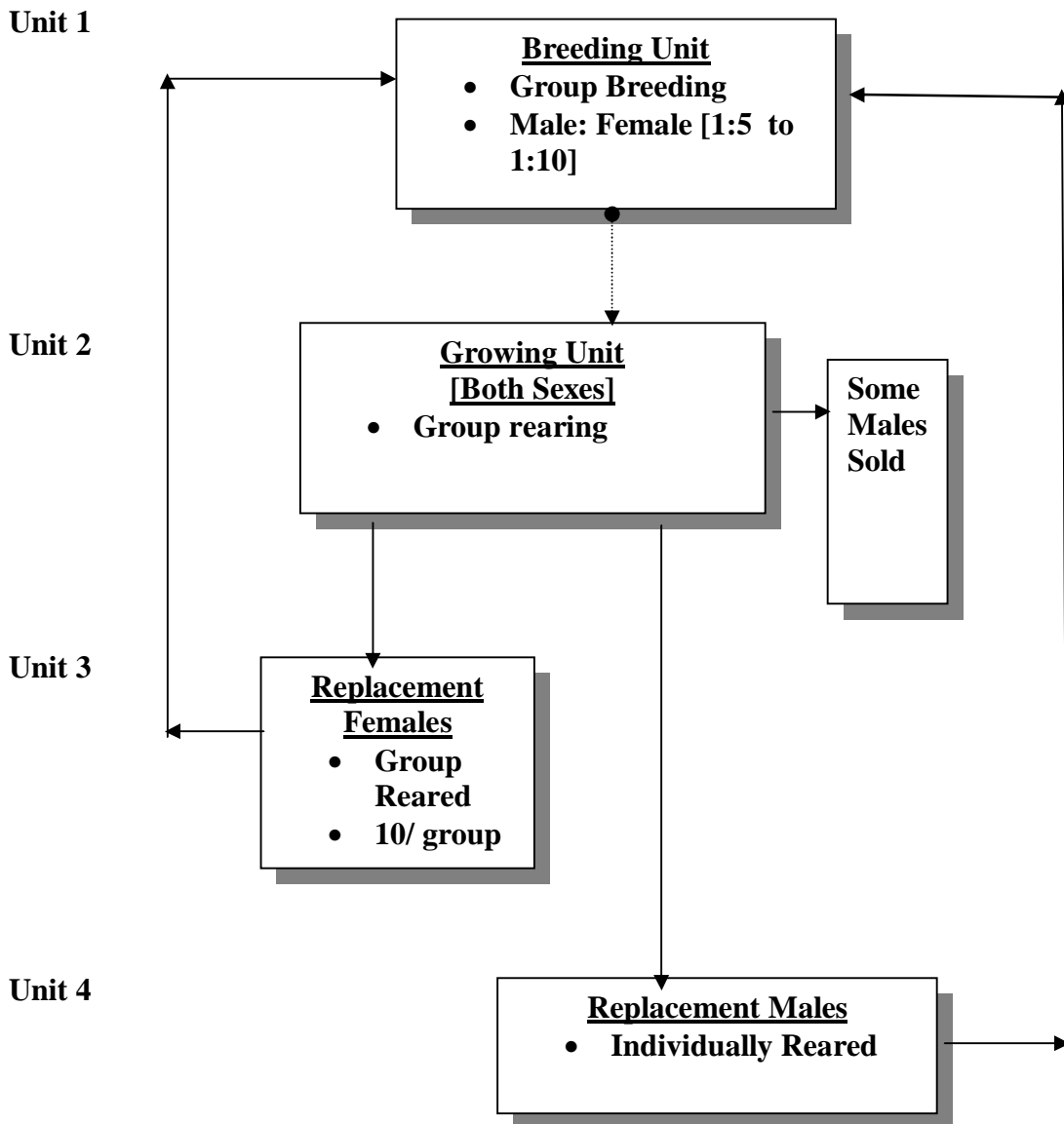
Sexually Mature Females [Replacement Agujen]

Unit 4: Replacement Breeding Males [Individual Cages]

Sexually Mature Males [Replacement Agujoe]

AGOUTI PRODUCTION UNITS PROCESS FLOW

Figure 2: Agouti Production Units Process Flow



FEATURES OF HOUSING FOR AGOUTI

The **Main Housing elements for the intensive production of Agouti** are as follows:

- Ø Hiding Areas for the newborn and young
- Ø Clean water supply daily
- Ø Shallow ponds for soaking their feet during the day
- Ø Sand pit for digging and hiding food
- Ø Good Ventilation
- Ø Good Animal Visibility
- Ø Secure gates
- Ø Rodent Control and Prevention of Entry of Large Rats which would attempt to carry away weak young [this can be done by enclosing the Breeding Unit with 1 inch square wire];
- Ø Control of Snakes and
- Ø The height of the walls from the ground could be as high as three (3) feet, to minimize the incidence of escape when a human is entering the pen, and to minimize the entrance of dogs.

Professor Thomas Henderson of Dominica has developed an Agouti house with most of these features.

BACKGROUND TO THE AGOUTI PRODUCTION MODEL

The work of the Intensive Agouti Production Unit in of the **Open Tropical Forage-Animal Production Laboratory [OTF-APL]** at the University of the West Indies, Trinidad, Trinidad and Tobago [and reported on by Brown-Uddenberg (2001) in her M.Phil Thesis] gathered the following information for the Intensive production of the Agouti:

- 1] Agoutis could be intensively reared;
- 2] Agoutis are not seasonal breeders;
- 3] Agoutis could be reared and reproduce successfully in rabbit sized cages, open enclosures or large cages [semi-intensive] or large enclosures with trees [extensive];
- 4] Agoutis could be weaned at eight weeks; showed signs of sexual maturity at 13.5 to 14.5 months and a female agouti could produce her first litter at 17-18 months;
- 5] Agoutis could be managed in a group breeding system, with the males continuously present with the females and suckling animals *pre-* and *post partum*; but the animals must not be stressed for food or space, and ample hiding and private places must be provided for the young; [this is because the males are the best detectors of estrus and the signs of estrus in the agouti female is not yet known];

- 6] Agouti breeding groups could be one (1) male to at least five (5) females, but the upper limits of the male to female ratios have not yet been determined but male: female ratio of 1:9 or 1:10 should be possible;
- 7] if Agouti males are limiting, a male could be left with a group of females for at least 20 to 36 days to ensure conception of all the females in that breeding colony;
- 8] if Agouti males are limiting in an ongoing breeding operation the males should be introduced into a colony of **pregnant females** [but the males must be slowly introduced to the females] at least one [1] to two [2] weeks *pre-partum* and then be left there for between **20 to 36 days post partum** to ensure conception;
- 9] care must be taken when introducing new males or other animals into a group, they must be slowly exposed to the group by placing the new animal into an adjacent pen or into a smaller pen within the larger pen, so that they become accustomed to that animal through sight and smell;
- 10] when females within the group are observed pregnant, by the distention of the teats, cover page and figure # 12, they could be placed into a portable smaller pen within the larger pen for parturition and in order to ensure identification of the litter size and the animals within the litter;
- 11] our observations suggest that the Agouti would go into oestrus [heat] while lactating;
- 12] sex determination in agoutis involved physically restraining the animal, followed by applying digital pressure in the region directly anterior the urethra and anus respectively; the protrusion of a cylindrical structure represented the penis of the male Agouti, and no protrusion indicated that the Agouti was a female [Figures #8, 9 and 11];
- 13] the manifestation of external signs of pregnancy included the protrusion of two pairs of teats in the thoracic region two weeks prior to parturition; and the noticeable decrease in appetite the day before parturition;
- 14] **Agoutis are not generally prolific breeders**, because the female agoutis would give birth to an average of 1.25 litters per year (with a range of 1-2); with an average of 1.7 offspring being produced per litter (with a range of 1-3); however three (3) litters / year is possible with efficient breeding management and there is scope for improvements in litter sizes [from 1.7 to 6] through selection;
- 15] Agoutis practiced coprophagy like the rabbit and the guinea pig;
- 16] Agoutis practices food hoarding in the caged environment;
- 17] after prolonged and continuous exposure to Agouti some people may develop an allergic reaction which involves watering of the eyes, sneezing or allergic type upper respiratory tract conditions;

18] female Agouti like many mammals also eat the “after birth” after parturition;

19] no major disease problems are encountered with the intensive rearing of the Agouti, the only health problems encountered are those associated with trauma and infection due to fighting or the attacking of young by adult Agoutis.

In all instances the Agouti species being referred to is the *Dasyprocta leporina*.

Target Performance Coefficients

The results of our work have produced some production performance parameters, which could be used as “Target Performance Coefficients” for the intensive production of agoutis. These “Target Performance Coefficients” should give the agouti production model some level of predictability [Table 1].

Table 1: Target Performance Coefficients for Agoutis

Age of Sexual Maturity	13 ¹ / ₂ - 14 ¹ / ₂ months
Age at First Litter	17-18 months
Breeding	Year round
Length of Gestation	104-112 days
*Postpartum Oestrous	To be verified
Number of Offspring per Litter (litter size)	2 (range 1-6)
Minimum Number of Litters per Year per Female	1.25 (range 1-3)
Number of days between successive parturition (parturition interval)	163 days
Number of days between Union of Males and Females to Conception	Individual breeding: 20-36 days Group breeding: 1-19 days
Birth Weights: Male Female	307.40 g 288.12 g
Birth Lengths : Male Female	21.90 cm 22.44 cm
Weaning Age	8 weeks
Weaning Weight: Male Female	1096.80 g 1199.70 g
Weaning Length Male Female	29.80 cm 32.40 cm
Mortality Rate: Offspring	15.5 %
Mature Agoutis	10.8 %

* While completing the thesis it was observed that the number of days between two successive parturition with one pair of agoutis where the male was kept with the female at all times was 123 days. Assuming that gestation lasts about 104 days the average number of days between parturition and the next conception postpartum was therefore 19 days.

A feasibility study of Agouti Farming in Trinidad and Tobago was done in 1986 by Miller and Miller (1986). This was done based on farmers' experiences with the Agouti in Trinidad and Tobago. They suggested a male: female ratio of 1:9, and assumed two litters /year / female, with a litter size of two. Out of this only males were to be sold for the first three years. The suggested opening stock was 26 males and 255 females. Their financial calculations suggested a negative cash flow for the first three (3) years. Their animal projections seemed feasible based on the observed and calculated litter interval of 163.

SOME HUSBANDRY PRACTICES AND GUIDELINES

Practical Agouti Housing

- Avoid using wood as structural or enclosure elements.
- Always attempt to have logs 10 to 20 cms in diameter within the enclosures so that animals would have an item or items on which to work the agoutis incisors.
- The height of the housing could be about 6 feet, and the walls could be about 3 feet high.
- Water Supply:
 - Drinking Water Containers
 - should be narrow so that only their head will fit and the rim should be about 3 to 4 inches from the ground;
 - should be easily cleaned;
 - should not be easy for the animal to be immersed in the water;
 - filling should be semi-automatic to minimise labour requirements for daily routines;
 - must not be made of plastic, but could be of very thick PVC.
 - Water Ponds within the pen
 - should be about 15 to 30 cms square as the animals like to cool their feet in it;
 - should be only 3 to 6 cms deep to avoid young and new born from drowning;
 - should be easily cleaned;
 - filling and cleaning should be semi-automatic to minimise labour requirements for daily routines;
 - must be made of cement.
- Sand Pits:
 - should be about 15- 30 cms square;
 - should be 6 to 10 cms deep;
 - should be filled with sand.

Practical Agouti Feeding

- avoid feeding dusty materials;
- fruits should be cut up;
- do not discard the seeds of the fruits, the Agouti will eat the seeds, whole dried coconuts are good;
- the generalized Agouti Diet should look like this
 - a. Starchy or Sweet Fruit or Vegetables in Season
 - b. Mono-gastric Animal Pelleted Feed e.g. Pig Grower Pellets [this contains about 14 to 16% Crude Protein and is low in Fibre]
 - c. Any type of Seeds or Dried Peas
 - d. Drinking Water must be available at all times
 - e. Molasses Water [1molasses : 3 water] or Brown Sugar Water Solution.

Need for Chewing Items within the Cages or Enclosures

As stated earlier, this could be logs, but could include dried coconuts, or pieces of wood.

Breeding and Culling Practices

- As the production system will be based on the group breeding system, it is **IMPERATIVE** that ALL AGGRESSIVE young and adult males be culled. As soon as signs of aggression are observed remove the animal from the group.

Daily Routines

Daily Observation of Animals:

- Observe for sick animals
- Observe for changes in stool / faeces texture
- Observe for animals with wounds and treat as soon as possible
- Observe for signs of pregnancy through engorged teats
- Observe for the onset of parturition
- Observe for animals going off feed
- Ensure water supply is OK
- Observe the Breeding Males for any signs of abnormalities around the reproductive areas.

Feeding of Animals:

- Ensure a good daily feeding routine

Daily Observations of Pens:

- Look for signs of rodents becoming pests
- Look for signs of entry of snakes and other predators.

Monthly Routines

- Prepare new pens for incoming weaned or adult animals

Seasonal Routines

- Keep in touch with other Agouti farmers for purposes of
 - Sharing information and experiences
 - Exchanging Breeding Males [Avoid using males on their daughters].

SOME COMMENTS ON WHAT RESEARCH THAT STILL HAS TO BE DONE WITH THE AGOUTI

Further research is needed to determine the limited space requirement needed for an intensive production system, which would not have a negative effect on the offspring survival rate. Further work is also needed to design water and feeding systems, which would minimise the daily labour requirement of the intensive production system.

There is also the need for research to be done on the nutrient requirement and ration formulation of the agouti at given levels of production and physiological state. In addition, the feeding values of the feeding stuff to be used in the formulation of a ration for the agouti should also be investigated.