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## Feed intake and survivability of edible land snail species under two temperature and moisture conditions.

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**ABSTRACT:** The giant African land snails (*Archachatina marginata* and *Achatina achatina*) housed under cage system were investigated using 60 juvenile (5-month-old) snails of each species. Feed intake and mortality rate in percentage were recorded. The interaction between temperature, moisture and species was highly significant on feed intake of the snails ( $p < 0.001$ ). The overall mortality rate was 23.3%, of which *A. marginata* and *A. achatina* had 4.2% and 19.1% respectively. Ambient temperature, and moistening the soil with 65 ml of water on daily basis increase feed intake and reduced the mortality rate of these snails, thereby increasing their survivability.

**INTRODUCTION:** The meat of snail is high in protein and no fat or cholesterol. Snails can be grown by anyone, without using large cash/capital. Thus, their propagation has the advantage of being a low input industry. Efforts are being made at its large scale production, however, there are factors limiting this, of which temperature and humidity are of great importance.

**OBJECTIVE** The study was aimed at determining the feed intake and survivability of these land snail species under two temperature and moisture conditions.

**MATERIALS AND METHODS:** The study was carried out at the Snail Research Unit of the College of Animal Science and Livestock Production (COLANIM), University of Agriculture, Abeokuta, OgunState, Nigeria. The experiment was 2 X 2 X 2 factorial (Species vs. temperature vs. moisture) with three replicate of five snails each. The mortality rate was evaluated by the percentage of snails dying during the experiment in each series. The effects of temperature and moisture on feed intake were analysed using analysis of variance of SYSTAT program.

## RESULT AND DISCUSSION

Table 1. Effects of moisture and temperature on feed intake of *A. achatina* and *A. marginata* (g/snail/week)

Temperature	Moisture	No. of snail	Species		Overall mean
			<i>A. marginata</i> (%) mortality	<i>A. achatina</i> (%) mortality	
Controlled temperature	High level	15	1.44±0.07 <sup>b</sup>	0.92±0.07 <sup>c</sup>	1.18±0.05
	Low level	15	1.39±0.07 <sup>b</sup>	0.94±0.07 <sup>c</sup>	1.17±0.05
	Mean	30	1.41±0.05	0.93±0.05	1.17±0.03
Ambient temperature	High level	15	1.73±0.07 <sup>a</sup>	1.38±0.07 <sup>b</sup>	1.55±0.05
	Low level	15	1.81±0.07 <sup>a</sup>	1.11±0.07 <sup>c</sup>	1.46±0.05
	Mean	30	1.77±0.05	1.24±0.05	1.50±0.03
Overall mean		60	1.59±0.03	1.09±0.03	

Table 2. The percentage mortality of both species under different treatment

Temperature	Moisture	No. of snail/species	Species	
			<i>A. marginata</i> (%) mortality	<i>A. achatina</i> (%) mortality
Controlled temperature	High level	15	6 (40.5)	1 (6.7)
	Low level	15	8 (58.6)	1 (6.7)
	Mean	30	46.7	6.7
Ambient temperature	High level	15	4 (26.7)	1 (6.7)
	Low level	15	5 (33.5)	2 (13.3)
	Mean	30	30.0	10.0
Overall mean		60	23 (38.3)	5 (8.3)

The interaction between moisture and temperature was significant on feed intake ( $p < 0.05$ ). The feed intake of *A. marginata* under each temperature regime with high and low moisture level was not significantly different ( $p > 0.05$ ). The feed intake by *A. achatina* and *A. marginata* was not significantly different under controlled temperature within high and low moisture levels.. This is in line with the report according to Akinnusi (1998) that less feed are consumed by snail under cold environment. This result shows that mortality was high for *A. marginata* with higher value under controlled unit compared to that of ambient temperature (46.7% and 30.0% respectively). However, *A. achatina* under controlled unit performed better than those under ambient temperature unit with 6.7% and 10.0% mortality respectively.

**CONCLUSION** Thus, ambient temperature and moistening the soil with 65 ml of water on daily basis increase feed intake and reduced the mortality rate of these snails, thereby increasing their survivability.

Reference: Odiete, W.O. 1999. Metabolic rate and temperature. In: Environmental physiology of animal and pollution. Diversity resources limited, Lagos, Nigeria. 95-97  
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