

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D. C. 20523
BIBLIOGRAPHIC INPUT SHEET

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1. SUBJECT
CLASSI-
FICATION

A. PRIMARY

Agriculture

AL72-0000-0000

B. SECONDARY

Pests of animals

2. TITLE AND SUBTITLE

Current status of Glossina morsitans colonies fed on goats

3. AUTHOR(S)

Chalo, O.

4. DOCUMENT DATE

1974

5. NUMBER OF PAGES

4p.

6. ARC NUMBER

ARC

7. REFERENCE ORGANIZATION NAME AND ADDRESS

USDA/ARS

8. SUPPLEMENTARY NOTES (*Sponsoring Organization, Publishers, Availability*)

9. ABSTRACT

10. CONTROL NUMBER

PN-RAA-547

11. PRICE OF DOCUMENT

12. DESCRIPTORS

Laboratory animals
Test facilities
Tsetse flies

13. PROJECT NUMBER

14. CONTRACT NUMBER

PASA RA-1-00 Res.

15. TYPE OF DOCUMENT

INTRODUCTION:

We have one fully operational Laboratory where *Glossina morsitans* is reared on goats. The Laboratory is divided into a goat barn section, feeding room, fly handling room, Insectary room and three preparation dressing rooms. Four colonies are reared in this Laboratory. Internal Colony - this is the oldest colony which is now self-supporting. External II Colony - this is F₁ generation of Ext. I Colony reared within the Laboratory. This colony will eventually be taken into Internal Colony. Ext. I Colony obtained from flies emerging from field collected pupae. The last one is the Bristol Colony which started with pupae brought to us from Bristol - Laboratory, England. The colony helps to check the performance of the main colonies named above.

STAFF:

There are fifteen men involved in the fly rearing. Six in the feeding room, six in the fly handling room, two in the workroom and one Supervisor. The men in the feeding room are concerned with the feeding of flies after which they continue with cage making. Those in the fly-handling room are concerned with the maintaining of records, mating and separation of mated flies, mortality checking which is done on Mondays, Wednesdays and Fridays. Collection of newly emerged flies, pupae collection and weighing. The men in the workroom are concerned with the cleaning of tubes and cages, washing of Lab uniforms which is done twice per week and general cleanliness of the Laboratory. The Supervisor is concerned with checking of all operations done in the Laboratory.

FLY FEEDING PROCEDURE:

People take showers before they put on laboratory uniforms as a measure against contamination in the Lab. Goats are taken in the feeding room at 8.00 a.m. and the actual feeding of the flies starts at 8.30 a.m. in the morning. There are three groups of goats used for feeding A, B and C. Each group rests for almost two days per week after it has been used for feeding. When goats become nervous and restless, they are removed immediately from the feeding room and another goat used to replace it.

FLY FEEDING TECHNIQUE:

Elastic belting is used to attach the cages to the goat flanks. The two belts are fastened to the middle of the cages one on top of the other. Enough velcro is attached to the end of each strap to ensure a firm join. Staff work in pairs to remove and apply cages to the flanks of the goat. Each cage contains up to 25 flies. Two "Geigy 25" cages are applied to small goats one on each side and four cages are applied to big goats two on each side of the flank. 500 flies are fed to a big goat per feeding day and 300 flies are fed to a small goat per feeding day. We feed 7000-8500 flies per day in 2 - 2½ hrs. The length of feeding flies is 15 minutes. The flies are fed daily. During feeding the cages are covered with white cloth. This is done to reduce disturbance of feeding flies by movement of people working in the feeding room and visitors. The cloth also helps to reduce the amount of light reaching the feeding flies which may disturb them.

FLY HANDLING:

Collection of newly emerged flies is done in the morning. The emergent cage is taken to the handling room where flies are removed and sexed. They are then put into cages 25 flies in each cage. Nearly 100 flies are collected from each colony at this time.

MATING:

Tube mating is used. The mating starts at 12.00 a.m. Day 3 females are mated with day 10 or older males. The males do not feed for the day they are used for mating. Males are never used more than twice allowing five days rest between matings.

RECORD KEEPING:

The method used is based on that used at Bristol - Laboratory, England. The new system of record keeping was introduced on May 1974. Stock sheets, master sheets and daily record stock book is used for each colony.

CLIMATIC CONTROL:

Air conditioners are installed in the insectary, fly-handling and fly-feeding rooms. Temperature is controlled in the insectary by the air conditioner thermostat bringing on each unit when required. Temperature is recorded daily at 9.00 a.m. in the morning. Air is circulated in the insectary by the air fan and by a revolving circulating fan which runs continuously. Temperature in the insectary is between 23 - 24 C. The temperature range is reduced by increasing the sensitivity of the air conditioner thermostat.

HUMIDITY:

Two "Golden Egg" humidifiers are in the insectary. Humidistat is wired to each humidifier to control the output of moisture from the instrument. The humidifiers use filtered rain water. The humidity range in the insectary fluctuates between 65 - 70%.

LIGHT INTENSITY:

In the insectary room the light intensity is kept at 12 hrs dark, 12 hrs dim light regime. The rheostat is set at '90' when we are working in the insectary and '60' when we are not working in the insectary.

RESULTS OF THE COLONY PERFORMANCE:

The results of the colony performance is good. We have been able to keep daily mortality below 2% and have steadily increased the number of fertilized females in our colonies from 25 - 29% per week. Pupae production is also higher. Sometimes we get high mortality in the colonies which may be caused by contamination of cages and poor feeding, but steps have been taken to improve the situation. We have permanent selected staff working in the laboratory who have now gained enough experience. These people are being trained within the job. Improvements will be made and we are continuing to improve efficiency as the same number of staff will be responsible for the anticipated rearing of 20,000 flies in this laboratory. The data attached below shows the weekly growth of the colonies.

WEEK	COLONY	/ D A T T V A V E R A G E /				
		TOTAL \bar{O}	\bar{O} M	PUPAE WT.	NEW \bar{O}	PUPAE \bar{O}
JULY						
3 - 9	Internal	1877	1.2	29.2	38	.074
	External II	1502	1.3	29.3	30	.053
	External I	-	-	-	-	-
	Bristol	865	1.3	30.3	26	.061
10 - 16	Internal	2024	0.9	30.0	37	.062
	External II	1574	1.4	28.4	34	.056
	External I	-	-	-	-	-
	Bristol	946	1.0	31.2	21	.064
17 - 23	Internal	2204	1.0	30.9	47	.048
	External II	1658	1.3	29.5	33	.050
	External I	-	-	-	-	-
	Bristol	988	1.2	28.9	18	.066
24 - 30	Internal	2324	1.2	30.7	45	.041
	External II	1678	1.8	28.6	33	.040
	External I	-	-	-	-	-
	Bristol	1069	0.8	32.8	19	.064
31 JULY -6 AUG.	Internal	2343	1.3	30.7	43	.047
	External II	1625	1.6	28.8	31	.044
	External I	-	-	-	-	-
	Bristol	1097	1.1	31.8	21	.066
7 - 13	Internal	2465	1.5	29.7	56	.056
	External II	1679	1.9	29.5	39	.054
	External I	-	-	-	-	-
	Bristol	1181	1.0	32.0	23	.077
14 - 20	Internal	2630	1.1	30.6	52	.051
	External II	1731	1.7	30.0	36	.050
	External I	257	-	-	-	-
	Bristol	1118	0.9	32.0	11	.074
21 - 27	Internal	2716	1.4	29.6	56	.055
	External II	1754	1.7	28.2	37	.047
	External I	435	0.7	-	28	-
	Bristol	1175	0.8	31.8	17	.080
28 AUG. -3 SEPT.	Internal	2727	1.6	30.2	46	.053
	External II	1768	1.9	30.5	37	.049
	External I	528	0.8	28.5	17	.031
	Bristol	608	0.9	32.2	20	.064

4 - 10	Internal	2806	1.6	30.0	55	.060
	External II	1745	2.1	28.6	35	.051
	External I	582	1.8	27.5	13	.045
	Bristol	579	0.7	28.9	-	.076
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11 - 17	Internal	2905	1.0	29.9	50	.060
	External II	1865	1.5	28.2	46	.049
	External I	657	1.1	29.2	17	.051
	Bristol	712	0.9	31.3	24	.078
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