

AD-A114 810

ARMED FORCES FOOD SCIENCE ESTABLISHMENT SCOTTSDALE (A--ETC F/G 6/8
FIELD EVALUATION OF AUSTRALIAN RATION PACKS. EMERGENCY FLYING R--ETC(U)
NOV 81 W E BADCOCK, D J LICHTENSTEIN

UNCLASSIFIED

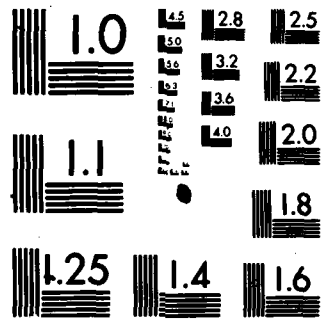
APFSE-2/81

NL

1
2
3



END
THIS
FILMED
6-82
DTIC



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

AFFSE REPORT 2/81

12

AR-002-761

AD A 114810



Department of Defence
Defence Science and Technology Organisation
Armed Forces Food Science Establishment
Scottsdale, Tasmania

AFFSE REPORT 2/81

Field Evaluation of Australian Ration Packs (U) Emergency Flying Ration

W. E. BADCOCK

and

D. J. LICHTENSTEIN

© COMMONWEALTH OF AUSTRALIA, 1981

"Original contains color plates: All DTIC reproductions will be in black and white"



DTIC
ELECTE
S MAY 25 1982 D
A

Approved for Public Release

November, 1981

DTIC FILE COPY

82 05 25 020

UNCLASSIFIED

DEPARTMENT OF DEFENCE
ARMED FORCES FOOD SCIENCE ESTABLISHMENT

AFFSE REPORT 2/81

FIELD EVALUATION OF AUSTRALIAN
RATION PACKS

EMERGENCY FLYING RATION (U)

W.E. Badcock and D.J. Lichtenstein

ABSTRACT

Troop feeding trials were conducted to determine the consumer acceptability and Service suitability of the Emergency Flying Ration packs on issue to Australian Servicemen.

These trials were superimposed upon combat survival courses which were conducted by the Royal Australian Air Force.

Results obtained indicated that, although the ration packs are generally satisfactory, implementation of the recommended changes should produce further improvements. (U)

Approved for Public Release

© COMMONWEALTH OF AUSTRALIA 1981.

POSTAL ADDRESS: The Director
Armed Forces Food Science Establishment
P.O. Box 147
SCOTTSDALE, Tasmania 7254

UNCLASSIFIED

DOCUMENT CONTROL DATA SHEET

UNCLASSIFIED

1. DOCUMENT NUMBERS

- a. AR Number: AR-002-761
- b. Series and Number:
- c. Report Number: AFFSE Report 2/81

2. SECURITY CLASSIFICATION

- a. Complete document:
Unclassified
- b. Title in isolation:
Unclassified
- c. Abstract in isolation:
Unclassified

3. TITLE: FIELD EVALUATION OF AUSTRALIAN RATION PACKS
EMERGENCY FLYING RATION

4. PERSONAL AUTHORS:

W.E. BADCOCK, and
D.J. LICHTENSTEIN

5. DOCUMENT DATE:

November, 1981

6. TYPE OF REPORT AND
PERIOD COVERED:

Technical Report 1976-80

7. CORPORATE AUTHOR:

Armed Forces Food Science
Establishment

8. REFERENCE NUMBERS:

- a. Task: 81/107
- b. Sponsoring Agency:
DOD (Army)

9. COST CODE: 241

10. IMPRINT

Armed Forces Food Science Establishment
P.O. Box 147, Scottsdale, Tasmania 7254
November, 1981

11. COMPUTER PROGRAMME:

12. RELEASE LIMITATIONS (of the document):

Approved for Public Release

12-0 OVERSEAS:

N.O.		P.R.	1	A		B		C		D		E	
------	--	------	---	---	--	---	--	---	--	---	--	---	--

13. ANNOUNCEMENT LIMITATIONS (of the information on this page) limitation

14. DESCRIPTORS:

Survival Rations Field Evaluations
Acceptability

15. COSATI CODES:

0608-0204

16. ABSTRACT:

Troop feeding trials were conducted to determine the consumer acceptability and Service suitability of the Emergency Flying Ration packs on issue to Australian Servicemen.

These trials were superimposed upon combat survival courses which were conducted by the Royal Australian Air Force.

Results obtained indicated that, although the ration packs are generally satisfactory, implementation of the recommended changes should produce further improvements. (U)

CONTENTS

	Page No.
Abstract	
Introduction	1
The Evaluation	1
Results and Discussion	1
Recommendations	2
Acknowledgements	3
References	3
Appendix A. User Questionnaire	
Distribution List	

Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A	



FIELD EVALUATION OF AUSTRALIAN RATION PACKS

Emergency Flying Ration

W. E. Badcock and D. J. Lichtenstein

INTRODUCTION

Following attendance at Combat Survival (COMSURV) Course Number 124 by one of the authors (DJL), it was recommended that questionnaires be incorporated as a regular part of the training course (Lichtenstein 1976). Accordingly, all students who attend COMSURV courses complete a questionnaire on the Emergency Flying Ration (EFR) after using it.

This report details results from users drawn from all three Service arms, but predominantly from the Royal Australian Air Force.

THE EVALUATION

The current format of the questionnaire card is set out at Appendix A. The questionnaire provides a scale for the respondent to rate the acceptability and Service suitability of each ration component. These scores were analysed using a Hewlett-Packard 9825 programmable calculator.

The acceptability of food items was estimated on a five point hedonic rating scale with the range extending from -2 to +2; the ends of the scale corresponding to the "Dislike Very Much" and "Like Very Much" categories respectively, with a neutral midpoint of 0 signifying "Neither like nor Dislike". From these data the mean acceptability scores and 'standard deviation' were calculated. Although the distribution cannot be normal (they are bounded and many are skew) the standard deviation was calculated by the usual formula to indicate the spread of user opinion. Results other than the average acceptability were converted to percentages; for example those respondents returning scores of -2 and -1 were grouped together to give an overall figure for "Percent Dislike". These figures have been used to find the order of preference of food items and sundries, which have been listed in decreasing order of acceptability.

These results were further analysed to determine whether COMSURV course, Service affiliation or marital status had any influence on the food preferences.

Additionally, the questionnaire provides a section for user comments, so that subjects could amplify low ratings given to items, as well as providing an opportunity for suggesting improvements in the light of practical user experience with the ration. The most frequent responses have been categorised.

RESULTS AND DISCUSSION

Analysis of Data

From the overall data presented in Tables 1-5, it is evident that "Instant Coffee", "Beef Block", and "Milk Powder" are unacceptable - being disliked respectively by 26%, 33% and 41% of all users. Furthermore, the preference ratings of these three items were consistently the lowest among all three Service arms.

There is no evidence that the Service affiliation or marital status of the participants had any effects on the acceptability of food items. While the differences between COMSURV courses are significant at the 5% probability level, it is not considered that this has any significance for the design of the EFR.

The bar charts in Figure 1 indicate the relative numbers of respondents who replied to the food questionnaires with each of the five acceptability ratings provided on the questionnaire. Furthermore, they serve to indicate the spread of opinion in regard to acceptability. The spread of replies is greater with the less acceptable ration items. This seems to be related to a reluctance on the part of some, but not all subjects to downgrade the rating of the food supplied. This has been reported previously (Badcock and Lichtenstein, 1978).

User Comments

The full analysis of user complaints and comments would have been unwieldy to be incorporated in a report of this size. Nevertheless the major sources of complaints are included as well as the main suggestions for improvement.

The complaints are of interest as they confirm the ratings contained in Table 4, showing coffee, beef block, and milk powder as being the least popular food items in the ration. Additionally, the water-food bag was of inadequate strength; the sweet wrappers stuck to the sweets; the matches were less than ideal ("book" matches were included in the rations used in the courses studied); the toilet paper was inadequate; the *Afsee* water sterilising tablets were unpopular because of the taste imparted to the water; and the packaging was considered both excessive and difficult to open.

Generally useful comments for improvements other than the correction of previously mentioned faults include:

- (a) Replacing some or all of the coffee with tea.
- (b) Reducing the amount of packaging.
- (c) Improving or replacing the beef block.
- (d) Providing more rubber bands, salt, soup cubes, and sugar.

On the other hand, requests for items such as "Glucodin", saccharin, "vitamin tablets", "protein concentrates", or canned foods indicate that some users lack the nutritional training required to maximise the likelihood of their ability to endure a real survival situation.

RECOMMENDATIONS

The following changes to the ration are recommended:

- (a) That the milk powder be replaced either with condensed milk or with "instant" milk powder.
- (b) That efforts be made to add extra flavour to the beef block.
- (c) That some of the coffee be replaced with tea.
- (d) That a stronger, more durable plastic be used for the water-food bag and that an additional smaller bag be included as well.
- (e) That holes be drilled in the lid of the container so that it can be used with the handles as a frying pan.
- (f) That the use of "Greenlite" or similar matches be continued.
- (g) That an extra rubber band be included.
- (h) That a razor blade be included.

It is also recommended that elementary training in food and nutrition be provided in the COMSURV course.

It is further recommended that special EFRs be packed incorporating recommendations (a) to (h) above and trialled on a future COMSURV course shortly after packing.

ACKNOWLEDGEMENTS

The authors gratefully acknowledge the assistance of the course members and their instructors for providing completed questionnaires, and Mr. D. R. Waters for assistance with the analysis.

REFERENCES

- Badcock, W.E. and Lichtenstein, D.J. (1978) AFFSE Report 4/78.
Lichtenstein, D.J. (1976) AFFSE Minor Report MR/122.

APPENDIX A

Course Number

*Armed Forces Food Science Establishment
Scottsdale, Tasmania*

EMERGENCY FLYING RATION

USER QUESTIONNAIRE

1. As a consumer of the rations you are in the best position to advise us on any changes that should be made.
2. Please complete this questionnaire by recording your *honest* reactions.
3. All answers will be treated as confidential.

Name and Rank

Service Branch

Age

Married

Single

Years of Service

FIGURE 1

GRAPHIC PRESENTATION OF INDIVIDUAL ACCEPTABILITIES

EMERGENCY FLYING RATION All Courses Combined

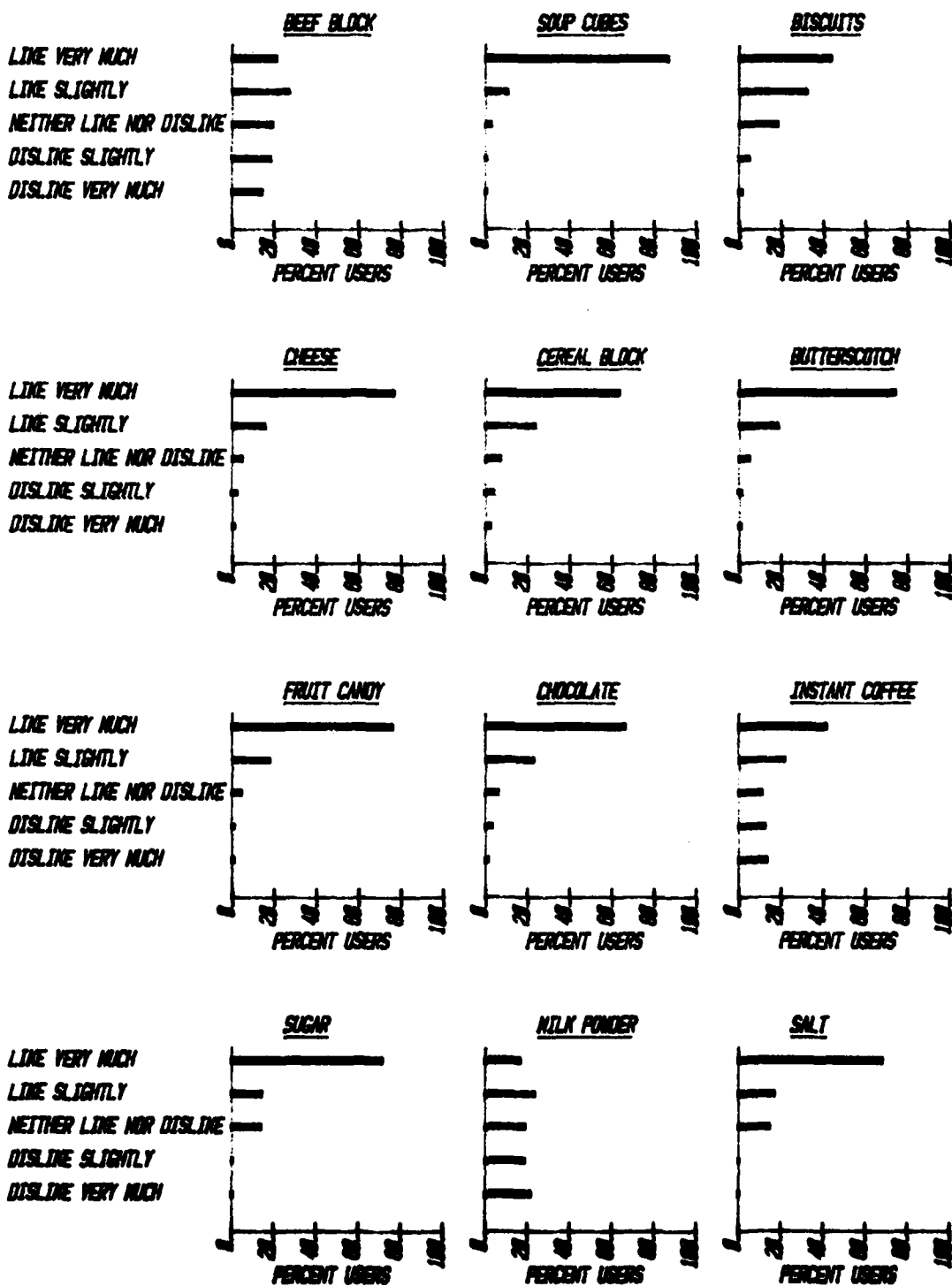


TABLE 1
EMERGENCY FLYING RATION QUESTIONNAIRE RESULTS
NAVY

No. of Subjects = 134 Average Age = 23.8 (SD = 4.7) Av Yrs Service = 6.0 (SD = 5.0)
 % Married = 39.6

FOOD ITEMS	ACCEPTABILITY					PACKAGING				
	Acceptability Score		%Dis-like	%Not tried	%Not replied	%All right	%Too shiny	%Too crackly	%Too flimsy	%Not replied
	Mean	S.D.								
Beef Block	0.48	1.29	22	4	1	70	4	1	0	3
Soup Cubes	1.71	0.68	2	0	0	70	4	0	2	3
Biscuits	1.11	0.88	4	0	1	71	4	0	1	3
Cheese	1.52	0.91	5	1	1	72	5	0	0	2
Cereal Block	1.40	0.95	8	2	0	72	4	0	0	3
Butterscotch	1.69	0.68	2	1	0	69	4	2	0	2
Fruit Candy	1.54	0.80	3	0	0	62	5	4	5	2
Chocolate	1.55	0.78	2	0	1	72	3	1	1	3
Instant Coffee	0.77	1.46	27	4	0	72	4	1	0	2
Sugar	1.56	0.77	0	1	0	72	4	1	0	3
Milk Powder	0.04	1.42	36	4	0	72	4	1	0	3
Salt	1.52	0.76	0	3	0	71	4	0	2	2

Overall Average = 1.24

SUNDRIES	% Satisfactory	% Unsatisfactory	Not Replied
Afses	78	10	13
Chloroquine	48	3	49
Matches	70	25	5
Toilet Paper	64	27	9
Spoon-opener	98	2	0
Instruction Sheet	90	7	3
Water/Food bag	75	25	1
Rubber Band	81	13	7
Container	96	4	0

PREFERENCE RATINGS

FOOD ITEMS				SUNDRIES	
Acceptabilities	(Mean Score)	Dislikes	(% Users)	(% Satisfactory)	
Soup Cubes	1.7	Sugar	0	Spoon-opener	98
Butterscotch	1.7	Salt	0	Container	96
Sugar	1.6	Soup Cubes	2	Instruction Sheet	90
Salt	1.5	Butterscotch	2	Rubber Band	81
Chocolate	1.5	Chocolate	2	Afses	78
Fruit Candy	1.5	Fruit Candy	3	Water/Food bag	75
Cheese	1.5	Biscuits	4	Matches	70
Cereal Block	1.4	Cheese	5	Toilet paper	64
Biscuits	1.1	Cereal Block	8	Chloroquine	48
Instant Coffee	0.8	Beef Block	22		
Beef Block	0.5	Instant Coffee	27		
Milk Powder	0.0	Milk Powder	36		

TABLE 2
EMERGENCY FLYING RATION QUESTIONNAIRE RESULTS
ARMY

No. of Subjects = 28 Average Age = 24.5 (SD = 3.8) Av Yrs Service = 5.9 (SD = 3.9)
 % Married = 60.7

FOOD ITEMS	ACCEPTABILITY					PACKAGING				
	Acceptability Score		%Dis-like	%Not tried	%Not replied	%All right	%Too shiny	%Too crackly	%Too flimsy	%Not replied
	Mean	S.D.								
Beef Block	-0.15	1.29	48	4	0	82	11	0	0	0
Soup Cubes	1.79	0.50	0	0	0	86	7	0	4	0
Biscuits	0.86	1.11	11	0	0	86	11	0	0	0
Cheese	1.39	1.07	7	0	0	93	4	0	0	0
Cereal Block	1.48	0.75	4	4	0	86	11	0	0	0
Butterscotch	1.11	1.23	14	0	0	82	4	11	0	0
Fruit Candy	1.46	1.07	7	0	0	82	4	11	0	0
Chocolate	1.61	0.57	0	0	0	86	7	4	0	0
Instant Coffee	0.56	1.58	33	4	0	93	4	0	0	0
Sugar	1.64	0.68	0	0	0	93	4	0	0	0
Milk Powder	-0.33	1.47	56	4	0	93	4	0	0	0
Salt	1.79	0.57	0	0	0	89	4	0	4	0

Overall Average = 1.10

SUNDRIES	%Satisfactory	%Unsatisfactory	Not Replied
Afses	71	14	14
Chloroquine	43	4	54
Matches	71	29	0
Toilet paper	75	14	11
Spoon-opener	96	0	4
Instruction Sheet	89	4	7
Water/Food bag	86	11	4
Rubber Band	89	7	4
Container	96	4	0

PREFERENCE RATINGS

FOOD ITEMS				SUNDRIES	
Acceptabilities	(Mean Score)	Dislikes	(% Users)	(% Satisfactory)	
Soup Cubes	1.8	Soup Cubes	0	Spoon-opener	96
Salt	1.8	Salt	0	Container	96
Sugar	1.6	Sugar	0	Rubber Band	89
Chocolate	1.6	Chocolate	0	Instruction Sheet	89
Cereal Block	1.5	Cereal Block	4	Water/Food bag	86
Fruit Candy	1.5	Fruit Candy	7	Toilet paper	75
Cheese	1.4	Cheese	7	Afses	71
Butterscotch	1.1	Biscuits	11	Matches	71
Biscuits	0.9	Butterscotch	14	Chloroquine	43
Instant Coffee	0.6	Instant Coffee	33		
Beef Block	-0.1	Beef Block	48		
Milk Powder	-0.3	Milk Powder	56		

TABLE 3
EMERGENCY FLYING RATION QUESTIONNAIRE RESULTS
RAAF

No. of Subjects = 369 Average Age = 24.2 (SD = 5.7) Av Yrs Service = 5.3 (SD = 4.1)
 % Married = 39.8

FOOD ITEMS	ACCEPTABILITY					PACKAGING				
	Acceptability Score		% Dis-like	% Not tried	% Not replied	% All right	% Too shiny	% Too crackly	% Too flimsy	% Not replied
	Mean	S.D.								
Beef Block	0.15	1.36	36	5	0	80	2	1	2	2
Soup Cubes	1.87	0.41	0	1	0	78	2	1	4	3
Biscuits	1.14	0.97	7	1	0	79	2	1	4	3
Cheese	1.71	0.63	2	1	0	79	3	1	1	3
Cereal Block	1.42	0.93	6	3	0	80	2	1	2	3
Butterscotch	1.67	0.64	1	1	0	76	2	4	2	3
Fruit Candy	1.73	0.59	1	0	1	72	2	5	5	3
Chocolate	1.48	0.88	6	0	0	78	3	1	2	3
Instant Coffee	0.63	1.44	25	4	0	78	2	2	2	3
Sugar	1.55	0.78	1	1	0	79	1	1	3	3
Milk Powder	-0.06	1.39	41	4	0	77	2	1	4	3
Salt	1.51	0.76	0	2	0	78	2	1	4	3

Overall Average = 1.23

SUNDRIES	% Satisfactory	% Unsatisfactory	Not Replied
Afses	82	7	11
Chloroquine	60	8	33
Matches	69	27	4
Toilet paper	64	29	7
Spoon-opener	96	3	1
Instruction Sheet	88	7	5
Water/Food bag	70	28	2
Rubber Band	85	10	5
Container	92	5	2

PREFERENCE RATINGS

FOOD ITEMS				SUNDRIES	
Acceptabilities	(Mean Score)	Dislikes	(% Users)	(% Satisfactory)	
Soup Cubes	1.9	Soup Cubes	0	Spoon-opener	96
Fruit Candy	1.7	Salt	0	Container	92
Butterscotch	1.7	Fruit Candy	1	Instruction Sheet	88
Cheese	1.7	Butterscotch	1	Rubber Band	85
Salt	1.5	Sugar	1	Afses	82
Sugar	1.5	Cheese	2	Water/Food bag	70
Chocolate	1.5	Chocolate	6	Matches	69
Cereal Block	1.4	Cereal Block	6	Toilet paper	64
Biscuits	1.1	Biscuits	7	Chloroquine	60
Instant Coffee	0.6	Instant Coffee	25		
Beef Block	0.1	Beef Block	36		
Milk Powder	-0.1	Milk Powder	41		

TABLE 4
EMERGENCY FLYING RATION QUESTIONNAIRE RESULTS
TOTAL

No. of Subjects = 531 Average Age = 24.1 (SD = 5.3) Av Yrs Service = 5.5 (SD = 4.4)
 % Married = 40.9

FOOD ITEMS	ACCEPTABILITY					PACKAGING				
	Acceptability Score		%Dis-like	%Not tried	%Not replied	%All right	%Too shiny	%Too crackly	%Too flimsy	%Not replied
	Mean	S.D.								
Beef Block	0.22	1.35	33	5	1	77	3	1	2	2
Soup Cubes	1.82	0.50	1	1	0	76	3	1	4	3
Biscuits	1.11	0.96	6	1	0	77	3	1	3	3
Cheese	1.65	0.74	3	1	0	78	4	1	1	3
Cereal Block	1.42	0.93	6	3	0	78	3	1	1	3
Butterscotch	1.64	0.70	2	1	0	75	3	4	2	3
Fruit Candy	1.67	0.69	2	0	0	70	3	5	5	3
Chocolate	1.50	0.84	5	0	0	77	3	1	2	3
Instant Coffee	0.66	1.45	26	4	0	77	2	2	2	3
Sugar	1.56	0.77	1	1	0	78	2	1	2	3
Milk Powder	-0.05	1.40	41	4	0	77	3	1	2	3
Salt	1.53	0.75	0	2	0	77	2	1	3	3

Overall Average = 1.23

SUNDRIES	%Satisfactory	%Unsatisfactory	Not Replied
Afses	80	8	12
Chloroquine	56	6	38
Matches	70	27	4
Toilet paper	65	28	7
Spoon-opener	96	3	1
Instruction Sheet	88	7	5
Water/Food bag	72	26	2
Rubber Band	84	11	5
Container	93	5	2

PREFERENCE RATINGS

FOOD ITEMS				SUNDRIES	
Acceptabilities	(Mean Score)	Dislikes	(% Users)	(% Satisfactory)	
Soup Cubes	1.8	Salt	0	Spoon-opener	96
Fruit Candy	1.7	Soup Cubes	1	Container	93
Sugar	1.6	Sugar	1	Instruction Sheet	88
Butterscotch	1.6	Fruit Candy	2	Rubber Band	84
Cheese	1.6	Butterscotch	2	Afses	80
Salt	1.5	Cheese	3	Water/Food bag	72
Chocolate	1.5	Chocolate	5	Matches	70
Cereal Block	1.4	Cereal Block	6	Toilet paper	65
Biscuits	1.1	Biscuits	6	Chloroquine	56
Instant Coffee	0.7	Instant Coffee	26		
Beef Block	0.2	Beef Block	33		
Milk Powder	-0.1	Milk Powder	41		

TABLE 5

EMERGENCY FLYING RATION SUMMARY RESULTS BY COMSURY COURSES

Course	124	125	127	133	134	135	137	138	142	144	145	146	148	149	150	151	154	155	158	159	160	161	162	Overall
SUBJECTS																								
No. Subjects	19	37	15	20	30	21	21	20	18	15	23	27	21	19	24	17	32	28	19	22	25	28	30	531
Average Age	22.9	23.8	24.2	24.7	24.2	25.0	25.2	23.6	21.6	27.7	24.6	22.3	25.1	24.5	23.6	26.1	22.9	22.4	25.5	23.7	27.0	24.1	23.4	24.1
Av. yrs. Svce.	4.4	5.4	5.4	6.5	5.9	5.8	6.8	5.4	3.4	9.1	6.3	4.3	6.8	6.3	5.0	7.9	4.2	4.6	7.3	4.9	5.0	5.3	4.8	5.5
% Married	26.3	40.5	66.7	35.0	53.3	52.4	66.7	55.0	5.6	40.0	47.8	18.5	52.4	36.8	50.0	64.7	31.3	25.0	47.4	31.8	36.0	35.7	40.0	40.9
ACCEPTABILITY																								
Beef Block	0.4	0.1	0.7	-1.0	-0.4	0.2	1.0	-0.5	0.2	0.1	1.0	0.8	1.0	0.5	0.2	-0.1	-0.1	0.2	0.9	-0.3	0.6	0.3	-0.1	0.2
Soup Cubes	1.2	1.7	1.7	1.9	1.9	2.0	1.8	1.9	1.8	1.9	2.0	2.0	2.0	1.8	1.9	1.9	1.7	1.8	1.9	1.7	1.9	1.7	1.8	1.8
Biscuits	0.8	1.1	1.5	1.4	1.0	0.9	1.1	0.9	0.9	1.3	1.0	1.3	0.9	1.7	1.1	1.5	0.7	1.0	1.5	1.5	1.2	1.2	0.9	1.1
Cheese	1.7	1.8	1.7	1.9	1.2	1.9	1.9	1.6	1.7	1.9	1.4	1.5	1.5	1.9	1.1	1.9	1.4	1.6	1.6	1.8	1.8	1.7	1.9	1.6
Cereal Block	1.7	1.3	1.5	1.3	1.6	1.0	1.6	1.7	1.9	1.5	1.8	1.3	1.3	1.5	0.7	1.5	1.2	1.8	1.4	1.6	1.1	1.3	1.3	1.4
Butterscotch	1.7	1.5	1.5	1.8	2.0	1.9	1.9	1.6	1.9	1.9	1.7	1.7	1.8	1.7	1.6	1.6	1.4	1.4	1.6	1.5	1.5	1.4	1.6	1.6
Fruit Candy	1.4	1.5	1.4	1.9	1.5	1.6	1.8	1.1	1.9	1.9	1.7	1.8	1.8	1.8	1.9	1.6	1.8	1.7	1.7	1.5	1.8	1.5	1.8	1.7
Chocolate	1.8	1.4	1.7	1.4	1.5	1.0	1.3	1.5	1.3	1.9	1.4	1.5	1.5	1.6	0.9	1.8	1.4	1.7	1.8	1.5	1.5	1.5	1.6	1.5
Inst. Coffee	1.4	0.8	1.2	1.1	0.3	1.2	0.3	0.0	-0.3	0.9	0.2	1.0	-0.4	1.6	0.2	1.6	0.6	0.6	-0.5	0.8	0.8	1.1	0.8	0.6
Sugar	1.7	1.7	1.6	1.7	1.7	1.6	1.6	1.4	1.9	1.8	1.5	1.7	1.5	1.8	1.1	1.7	1.5	1.4	1.3	1.6	1.4	1.6	1.4	1.6
Milk Powder	0.5	0.2	-0.5	-0.8	-0.6	-0.0	-0.1	0.2	-0.6	-0.6	-0.1	-0.9	0.7	0.8	-0.1	0.4	-0.1	0.6	-1.1	0.2	-0.2	0.5	0.1	-0.0
Salt	1.4	1.5	1.5	1.8	1.9	1.9	1.5	1.9	1.8	1.7	1.7	1.7	1.6	1.7	1.1	1.5	1.4	1.1	1.3	1.4	1.4	1.1	1.4	1.5
Course Avge.	1.3	1.2	1.3	1.2	1.1	1.3	1.3	1.1	1.2	1.4	1.3	1.3	1.3	1.6	1.0	1.4	1.1	1.2	1.1	1.2	1.2	1.2	1.2	1.2

Course

SUBJECTS

No. Subjects
Average Age
Av. yrs. Svce.
% Married

ACCEPTABILITY

Beef Block
Soup Cubes
Biscuits
Cheese
Cereal Block
Butterscotch
Fruit Candy
Chocolate
Inst. Coffee
Sugar
Milk Powder
Salt

Course Avge.

DISTRIBUTION LIST

DEFENCE ESTABLISHMENTS	No. of Copies	DEFENCE ESTABLISHMENTS Cont'd.	No. of Copies
Department of Defence, Campbell Park Offices CANBERRA, A.C.T. 2600		Headquarters 1 Military District Victoria Barracks BRISBANE, Queensland 4000	1
(a) Chief Defence Scientist	1	Headquarters 2 Military District Victoria Barracks SYDNEY, N.S.W. 2000	2
(b) Deputy Chief Defence Scientist	1	Headquarters 3 Military District Victoria Barracks MELBOURNE, Victoria 3000	1
(c) J10 (DDSTI)	1	Headquarters 4 Military District Kewick Barracks ADELAIDE, S.A. 5035	1
(d) CPAS	1	Headquarters 5 Military District Irwin Barracks KARRAKATTA, W.A. 6010	1
(e) Counsellor Defence Science - Washington	1	Headquarters 6 Military District Anglesea Barracks HOBART, Tasmania 7002	1
(f) Defence Science Representative - London	1	Headquarters 7 Military District Larrakeyah Barracks DARWIN, Northern Territory 5790	1
(g) Controller Service Laboratories and Trials Division	2	Royal Military College DUNTROON, A.C.T. 2600	1
(h) Superintendent Science and Technology Programs	1	(a) The Librarian Bridges Memorial Library	1
(i) Defence Information Services Branch	16	(b) The Faculty Admin Officer Faculty of Military Studies	1
(j) Defence Central Library	1	Commandant Australian Staff College FORT QUEENSCLIFFE, Victoria 3255	2
Department of Defence (Army Office) Russell Offices CANBERRA, A.C.T. 2600		Commanding Officer/Chief Instructor RAOC Centre Milpo BANDIANA, Victoria 3662	2
(a) Chief of Logistics	1	Commandant RAAF Staff College RAAF Base Fairbairn CANBERRA, A.C.T. 2600	2
(b) Chief of Materiel	1	Director Institute of Aviation Medicine POINT COOK, RAAF Victoria 3029	2
(c) Director General of Logistic Development and Plans	1		
(d) Director General of Materiel	1		
(e) Director General of Supply	2		
(f) Director General of Army Health Services	2		
(g) Director of Infantry	1		
(h) Director of Catering	1		
(i) Scientific Adviser - Army	1		
Department of Defence (Air Force Office) Russell Offices CANBERRA, A.C.T. 2600			
(a) Air Force Scientific Adviser	1		
(b) Director of Catering and Services (DCATSER-AF)	2		
Senior Librarian Aeronautical Research Laboratories P.O. Box 4331 MELBOURNE, Victoria 3001	1		
Senior Librarian Defence Research Centre G.P.O. Box 2151 ADELAIDE, S.A. 5001	1		
Joint Tropical Trials and Research Establishment P.O. Box 931 INNISFAIL, Queensland 4860	1		
The Director of Naval Victualling & General Stores			
Department of Defence (Navy Office) Campbell Park (CP3-1-10) CANBERRA, A.C.T. 2600	2		
Headquarters Field Force Command Victoria Barracks PADDINGTON, N.S.W. 2021	3		
Headquarters Logistic Command St. James Plaza G.P.O. Box 1932R MELBOURNE, Victoria 3001	3		
Headquarters Training Command Victoria Barracks PADDINGTON, N.S.W. 2021	1		
Headquarters Operational Command (Staff Officer Catering) RAAF PENRITH, N.S.W. 2750	1		
Headquarters Support Command (CE04/E41) RAAF Defence Centre 366 St. Kilda Road MELBOURNE, Victoria 3000	1		
		CIVILIAN ESTABLISHMENTS	
		Secretary ADFFSC Department of Primary Industry P.O. Box 4488 CANBERRA, A.C.T. 2600	1
		The Librarian CSIRO Tasmanian Regional Laboratory Stowell Avenue HOBART, Tasmania 7000	1
		The Librarian CSIRO Division of Food Research P.O. Box 52 NORTH RYDE, N.S.W. 2113	1
		The Librarian CSIRO Dairy Research Laboratory P.O. Box 20 HIGHTT, Victoria 3190	1
		Library Dept of Science and Technology P.O. Box 449 WODEN, A.C.T. 2806	1
		Aust. Govt. Analyst Dept of Science & Technology P.O. Box 449 WODEN, A.C.T. 2806	1

CIVILIAN ESTABLISHMENTS Cont'd.

Director
Antarctic Division
Dept of Science & Technology
KINGSTON, Tasmania 7150 1

The Central Library
Department of Health
P.O. Box 100
WODEN, A.C.T. 2606 2

Dr. R. C. Hutchinson
Derwentlaken Road
OTAGO, Tasmania 7402 1

State Library of Tasmania
91 Murray Street
HOBART, Tasmania 7000 1

(a) Tasmanian Collection 1
(b) Serials Section 1

Serials Library
State Library of Queensland
William Street
BRISBANE, Queensland 4000 1

Reference Section
Hellyer Regional Library
Alexander Street
BURNIE, Tasmania 7320 1

Head
Food School
East Sydney Technical College
Forbes Street
DARLINGHURST, N.S.W. 2010 1

Professor R. A. Edwards
Head
School of Food Technology
University of New South Wales
KENSINGTON, N.S.W. 2033 1

Preliminary Processing
National Library of Australia
CANBERRA, A.C.T. 2600 2

Serials
Biomedical Library
University of New South Wales
KENSINGTON, N.S.W. 2033 1

The Medical Library
Flinders University of South Australia
BEDFORD PARK, South Australia 5042 1

OVERSEAS ESTABLISHMENTS**BRITAIN**

Australian Army Representative
Australia House
Strand
London, WC2 B4LA, England 1

Director of Supplies of Transport (FMV)
Section 82B, Room 1235
Ministry of Defence
Empress State Building
London, SW6 1TR, England 1

Adviser in Nutrition
AMD5 (Army Dept) Ministry of Defence
Lansdowne House, Berkeley Square
London, W1 England 1

Deputy Chief Scientist (Army)
SAF (A) sb
Ministry of Defence
Main Building Whitehall
London, SW 1A 2HB England 1

The Director
Army Personnel Research Establishment
C/- Royal Aircraft Establishment
FARNBOROUGH, Hants, England 1

The Information Officer
British Food Manufacturing Industries
Research Association
Randalls Road, Leatherhead
Surrey, KT227RY England 1

The Librarian
Food Research Institute
Colney Lane
Norwich
Norfolk, NR4 7UA England 1

OVERSEAS ESTABLISHMENTS Cont'd.**BRITAIN Cont'd.**

Superintendent
Foods and Nutrition Division
Laboratory of the Government Chemist
Cornwall House, Stamford Street
London, SE1 9NQ England 6

The Librarian
A.R.C. Meat Research Institute
Langford, Bristol, BS18 7DY England 1

Dr. D. J. McWeeny,
Ministry of Agriculture, Fisheries & Food
Food Laboratory, Haldin House
Queen Street
Norwich, Norfolk, NR2 4SK England 1

The Librarian
National College of Food Technology
University of Reading
St. George Avenue, Weybridge
Surrey, England 1

The Director
Tropical Products Institute
Gray's Inn Road
London, WC1X 8LA England 1

CANADA

National Defence Headquarters
101 Colonel By Drive
Ottawa, Ontario K1A 0K2

(a) D Food S 2
(b) DCGEM 3 1
(c) NDHQ Main Library 1

SRI LANKA

Director
Food Research and Nutrition Council
C/- Food Commissioner
Union Place, Colombo, Sri Lanka 1

FEDERAL REPUBLIC OF GERMANY

Armed Services Food Chemist
89 Supply Depot RAOC (BFPO 40)
Viersen
Federal Republic of Germany 1

GHANA

Defence Adviser
Ghana High Commission
13 Belgrave Square
London, SW1X 8PR England 5

INDIA

Director General
Research and Development Organisation
Ministry of Defence
New Delhi 11 2

The Director
Defence Food Research Laboratory
Jyothi Nagar
Mysore, 570 010 India 2

MALAYSIA

Director
Defence Research Centre
Ministry of Defence
Rifle Range Road
Kuala Lumpur, Malaysia 3

NEW ZEALAND

Director
Defence Scientific Establishment
Naval Base Post Office
AUCKLAND, New Zealand 1

Assistant Chief Defence Staff
Defence Headquarters
Private Bag
WELLINGTON, New Zealand 1

DTMC
RNZCT Directorate
HQ N.Z. Land Forces
Private Bag
TAKAPUNA, Auckland, N.Z. 1

OVERSEAS ESTABLISHMENTS Cont'd.

PAPUA NEW GUINEA

Headquarters
Australian Defence Cooperation Group
(HQ ADCG)
P.O. Box 2270
Konedobu, Port Moresby 3

PHILIPPINES

Science Research Supervisor
Food Research Division
Food and Nutrition Research Institute
Manila, Philippines 1

UNITED STATES OF AMERICA

Chief
Food and Nutrition Section
NASA - Manned Spacecraft Center
Houston, Texas 1

Director
U.S. Army Natick Laboratories
(Food Laboratory)
Natick, Massachusetts U.S.A. 2

