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FIELD ACCEPTANCE AND NUTRITIONAL INTAKE OF THE MEAL, READY-TO-EAT AND HEAT AND SERVE RATION

**by
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13. ABSTRACT (Maximum 200 words) The primary objective of this field evaluation was to determine the field acceptance and nutritional consumption of the MRE and Heat & Serve Ration (H&S). This information was obtained by collecting food acceptability ratings, ration consumption and overall ration opinions for nine consecutive days. The H & S ration was served for the breakfast and dinner meals while the MRE was served solely for the lunch meal. This evaluation was conducted 2 - 11 September 1995 at the Yakima Training Center, Yakima, WA. The evaluation found most ration items acceptable for field feeding. All MRE items (rated by more than 10 soldiers) were well received with both variety and ration acceptability. Most H&S breakfast and dinner items received acceptability ratings above 5.0, the mid-point of the 9-point acceptability scale. Positive findings of nutrient intake include fat and sodium intake levels falling somewhat below the recommended NSOR while less desirable findings include caloric intake falling below the NSOR of 3600 calories.				
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PREFACE

This final report of the Meal, Ready-to-Eat (MRE) and the Heat & Serve Ration (H&S) was prepared by the U.S. Army Soldier Systems Command (SSCOM), Natick Research, Development and Engineering Center (NRDEC). Data collection took place during 2 -11 September 1995 at Yakima Training Center, Yakima, WA with soldiers from the 1/37 Artillery Battalion from Ft. Lewis, WA. Ms. Kathryn Rock, a member of the Science and Technology Directorate was the project officer for the evaluation and is affiliated with the Behavioral Sciences Division. Ms. Judith Aylward is the project officer for the MRE and M. Susan Harrington is project officer of the H&S ration. Both are affiliated with the Sustainability Directorate. This report was prepared under project No. 11AAOKOO.

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FIELD ACCEPTANCE & NUTRITIONAL INTAKE OF THE MEAL, READY-TO-EAT AND HEAT AND SERVE RATION

INTRODUCTION

The MRE remains an integral member of the U.S. Army family of operational rations. However, to meet the soldiers' changing needs, the MRE requires continual improvement to enhance acceptability and improve nutritional intake to maintain peak performance on the battlefield. Through the Individual Soldier Enhanced Ration (ISER) program, 12 new menus will be introduced into the MRE, 4 menus in MRE XVI (1996 production), four menus in MRE XVII (1997 production) and four menus in the MRE XVIII (1998 production), making the total number of menus 24. The primary objective of the ISER program is to provide additional menus for the MRE to increase variety and reduce menu fatigue. Previous research has shown that menu fatigue can lead to a decrease in food acceptability and, in some instances, reduced intake. Reduced intake may impair soldier performance by not providing the appropriate nutritional requirements for an active adult in the battlefield (1,2,3,4,5); providing the soldier the best possible ration enhances the soldier's quality of life. To effectively sustain the soldier, high quality, highly acceptable, nutritious rations must be provided to maintain/enhance performance on the battlefield (6,7).

The Heat and Serve (H&S) (also known as the Tray Ration) is designed to sustain groups of military personnel in highly mobile field situations with high quality, nutritionally adequate meals. The H&S ration provides breakfast and lunch/dinner menus. The ration components, in the 10-day menu, are thermally processed, preprepared, shelf-stable, and packaged in hermetically sealed half-sized steam table metal containers. This ration has been an integral part of the Army field feeding system (8,9). However, the H&S Unitized group ration (UGR) will soon succeed this ration and incorporate many H&S components. It should be noted that the Army plans to phase out the 18-man Tray Ration modules. However, the Marine Corps is expected to continue its use. Both of these rations require continuous improvements and additional variety to enhance acceptability, increase consumption and improve nutritional intake to maintain peak performance on the battlefield. Revisions of this ration are continuous through the Fielded Group Ration Improvement Program.

A field evaluation examining the acceptability of developmental and nondevelopmental food items for both the MRE and H&S Ration was conducted 2-11 September 1995 at the Yakima Training Center, Yakima, WA. This report details the findings of that evaluation.

METHODOLOGY

TEST SUBJECTS

Bravo and Charlie Batteries of the 1 Battalion 37th Artillery from Ft. Lewis, Washington participated in this evaluation. Bravo, the control group, was served the MRE XIII/XIV for the lunch meal with the standard H&S ration for both the breakfast and dinner meals. Charlie Battery (test group) consumed new MRE food items along with new H&S items.

TRAINING

During the evaluation, the battalion was engaged in a planned field exercise at the Yakima Training Center in Yakima, WA. Yakima Training Center is located approximately 200 miles southeast of Seattle, WA. The terrain is of desert type with dry sandy soil, scrub vegetation and no trees. The average temperature was approximately 40 degrees at night and rose to an average of 80 degrees during the day. It was mostly dry and dusty, although one day there was considerable rainfall.

Soldiers trained with self-propelled howitzers in various areas of the training center throughout this evaluation. Their activities consisted of midnight movements, direct fire, and fire support.

RATION AND RATION DISTRIBUTION

The ration cycle throughout the field exercise was H&S breakfast and dinner with an MRE lunch. The H&S breakfast was served daily between 0730 and 0900 and H&S dinner was served nightly between 1630 and 1900. Meals were heated at a field kitchen site then transported to a distribution point in 5-ton vehicles with heated food items and beverages in Cambro containers. The food was then transferred to HUMMVs for transport to the units. Hot meals were served on a small wooden table in the center of the units' position by kitchen support personnel. Once served, soldiers were required to return to their guns to eat their hot meal. The lunch MRE was distributed to the soldiers at the breakfast meal.

The flexibly packaged foods of the MRE are heat processed in retortable pouches. Each individual ration contains an entree/starch, crackers, a spread (cheese, peanut butter and/or jelly), a dessert, snack, beverage powders, an accessory packet, a plastic spoon and a Flameless Ration Heater (FRH). The MRE menus used during this evaluation can be found in Appendix A.

The H&S components are thermally-processed prepared, shelf-stable foods packaged in hermetically sealed, half-sized steam table metal containers. This ration provides food items for breakfast and lunch/dinner menus, along with instant beverages, non-dairy creamer, hot sauce, cups, utensils, and a 5 compartment tray for eating. The meal modules were supplemented with bread, milk, and fresh fruit (apples, oranges, and pears) at every meal, with an addition of cereal at the breakfast meal and salad at the dinner meal. Beverages such as coffee and juices were made in large batches and placed in Cambro containers for transport and serving. Chocolate and white shelf-stable milk in 8 oz cartons were also available during both breakfast and dinner meals. The H&S food items were heated using immersion heaters at the MKT area. Appendix A contains the breakfast and dinner H&S menus used for the field evaluation.

DATA COLLECTION

Data collected during this evaluation were primarily focused on MRE and H&S acceptance and consumption. Body weights, soldier demographics, portion-size ratings, and measurements of test participants opinions were also collected. Table 1 illustrates the data collection schedule for the evaluation.

Table 1
Data Collection Schedule

	<u>Base</u> <u>Line</u>	<u>Day</u> <u>1</u>	<u>Day</u> <u>2</u>	<u>Day</u> <u>3</u>	<u>Day</u> <u>4</u>	<u>Day</u> <u>5</u>	<u>Day</u> <u>6</u>	<u>Day</u> <u>7</u>	<u>Day</u> <u>8</u>	<u>Day</u> <u>9</u>	<u>Day</u> <u>10</u>
Background											
Questionnaire	X										
Body Weight	X				X			X			X
Food Intake	X	X	X	X	X	X	X	X	X	X	
Food Acceptance	X	X	X	X	X	X	X	X	X	X	
Final Questionnaire											X
Focus Group											X

BASELINE TESTING

Prior to the field evaluation, test participants were briefed on the purpose of the field evaluation and testing procedures. At the conclusion of the briefing, soldiers completed a short questionnaire providing demographics and baseline ration opinions. See Appendix B for the background questionnaire used in this evaluation.

BODY WEIGHTS

Body weights were collected in the field using SECA digital scales which were placed on wooden boards for stability. Soldiers were asked to remove all heavy garments such as jackets, weapons, and web belts, along with all articles from their pockets. Data collectors recorded all clothing on the soldier when weighed (See Appendix B). Weights were collected prior to the breakfast meal on Days 1, 4, 7, and 10. Body weights were obtained to monitor weight change of soldiers subsisting on military rations. Scales were calibrated prior to the field evaluation and monitored for accuracy throughout the evaluation.

FOOD ACCEPTANCE

All food acceptance was measured using a 9-point hedonic scale (See Table 2) on the MRE Intake Forms (Appendix B). Soldiers were instructed to rate only the ration food items consumed. MRE Intake Forms were distributed at the breakfast meal, completed over a 24-hour period, and returned to the data collector at the following breakfast meal. H&S acceptability forms (Appendix B) were distributed before the breakfast and dinner meals then completed and collected after the soldier ate his meal. Data collectors reviewed each form, MRE Intake and H&S Intake, with the soldier to ensure completeness and

accuracy. To yield a mean response with equal weight given to each subject, ratings for food items eaten more than once over the course of the study were averaged for each soldier and this average was used when the overall acceptability rating was calculated.

Table 2
Food Acceptability Scale

DISLIKE EXTREMELY	DISLIKE VERY MUCH	DISLIKE MODERATELY	DISLIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	LIKE SLIGHTLY	LIKE MODERATELY	LIKE VERY MUCH	LIKE EXTREMELY
1	2	3	4	5	6	7	8	9

FOOD INTAKE

Food intake was measured to determine the soldiers' caloric and nutrient intake for both rations (H&S and MRE) served during this evaluation. Intake was measured by visually analyzing food waste of both the MRE and H&S rations.

To measure MRE intake, the MRE trash was compared to the self-reported consumption information from the MRE Intake Form. Each morning soldiers returned all MRE trash, food waste and packaging to the data collector in a plastic zip lock bag which was provided along with the MRE Intake Form. All discrepancies between the two sources of food intake information were noted and later resolved with the individual at the next meal.

The H&S intake was measured using visual estimation techniques. During each meal, a "standard tray" was measured out. This consisted of a tray containing a recommended portion of each food item served at a given meal. Most food items on the standard tray of food were measured using an 8 oz measuring cup. This standard tray was placed in view of all data collectors. Before and after consumption, a soldier's food was visually compared to the food on the standard tray and the amount of each food item on the soldier's tray was recorded on the visual estimation form (Appendix B).

During this evaluation, soldiers were requested to consume only the rations provided by NRDEC. This would allow caloric calculations based solely on military ration consumption and to calculate an approximate level of soldier sustainability while consuming only military rations. Poge bait (non-ration food items) consumption was to be reported on the MRE Intake Records, but due to our request, the majority of soldiers were reluctant to report any the poge bait that was consumed. Though the ration continues to provide acceptable food items and food items more commonly eaten by soldiers, non-ration food item (poge bait) consumption continues during field exercises.

FINAL QUESTIONNAIRE

On the last day of data collection, Day 10, the test participants completed a final questionnaire. This questionnaire obtained soldiers opinions on general aspects of the rations and eating habits during the exercise. The final questionnaire can be found in Appendix B.

FOCUS GROUP

On the last day of data collection a focus group was conducted with both Bravo and Charlie Batteries. This offered additional information and recommendations for the items evaluated.

RESULTS

DEMOGRAPHICS

Table 3 summarizes the demographic information of the Control (n=38) and Test (n=39) groups. On average these soldiers have been in the Army over 5.5 years (Control = 6.2 yrs, Test = 5.9 yrs) and both groups had a mean age of 26.3. All test participants were male.

Table 3
Demographics

<u>Rank (n):</u>		<u>Control</u>	<u>Test</u>
Enlisted:	E1	1	5
	E2	2	-
	E3	4	2
	E4	19	15
	E5	5	9
	E6	4	4
	E7	1	1
	E8	-	1
Officers	O1	1	-
	O2	1	2
<u>Ethnic Background(%):</u>		<u>Control</u>	<u>Test</u>
White		47	35
Black		37	46
Hispanic		11	10
Asian/Pacific Island		-	3
Indian/Alaskan		3	3
<u>Education level (%)</u> :		<u>Control</u>	<u>Test</u>
Finished Grade School		3	-
Some High School		3	3
High School Grad/equiv.		31	38
Some College		50	51
College Grad		13	8

RATION ACCEPTABILITY

Acceptability ratings reported in Tables 4, 5 and 6 are the mean ratings from the MRE Intake Forms and H&S Acceptability Forms. The number of responses (n) is the number of subjects who rated a particular food item. If a subject rated an item more than once, his ratings were averaged before the mean acceptability rating was calculated. This approach yields mean responses with equal weight given to each participant. All food mean acceptability ratings are reported in the following tables. Items with N's below 10 are identified using italics. These ratings should not be considered as reliable as ratings by a greater number of respondents. Tables 4A & 4B show the mean acceptability ratings for the breakfast H&S foods for both the control and test groups, Table 5A & 5B shows the lunch MRE ratings, and Tables 6A & 6B are the acceptability ratings from the dinner H&S meals. Overall, the majority of the food items, with an N above 10, received ratings above the mid point of the scale (5, Neither Like nor Dislike). Only two food items received mean ratings lower than the scale midpoint (with an n above 10): Western Scrambled Eggs(Natick) and Scrambled Eggs w/Bacon(Natick). These two mean ratings were received from the control group.

Table 4A
Control Group
H&S Breakfast Acceptability Ratings (n=38)

<u>Food Groups</u>	<u>Food Item</u>	<u>Mean</u>	<u>N</u>
Entrees	Waffles	6.4	38
	Creamed Ground Beef	6.3	32
	Corned Beef Hash	6.1	26
	Western Scrambled Eggs (Natick)*	4.6	35
	Scrambled Eggs w/Bacon (Natick)	3.5	29
Meat Side Dishes	Pork Sausages	6.9	37
	Ham Slices	6.0	36
Starches	White Bread	7.4	34
	Wheat Bread	6.6	32
	Potatoes w/Bacon	6.1	35
Spreads	<i>Peanut Butter</i>	7.7	6
	<i>Jelly</i>	7.3	7
Snacks	Lemon Pound Cake	8.0	35
	Vanilla Pound Cake	7.8	27
	Pineapple Pound Cake	7.6	17
Fruits	Peach Slices	7.9	35
	Fruit Cocktail	7.6	32
	Apple Dessert	7.0	33
	Canned Pears	7.0	23
Fresh Fruit	Apple	7.9	17
	Orange	7.5	17
	<i>Pear</i>	7.5	6
Oatmeal	Raisin, Spice & Dates	8.4	12
	<i>Maple & Brown Sugar</i>	8.4	9
Beverages	Cocoa	7.4	10
	Orange Juice	7.3	35
	Chocolate Milk	7.3	22
	Coffee	7.1	11
	White Milk	6.6	22
	Grape Juice	5.9	31
Condiments	Hot Sauce	7.7	20
	Maple Syrup	6.6	38
	Ranchero Sauce	5.4	33

* Natick - NRDEC developed eggs

Table 4B
Test Group
H&S Breakfast Acceptability Ratings (n=39)

<u>Food Groups</u>	<u>Food Item</u>	<u>Mean</u>	<u>N</u>
Entrees	Blueberry Waffles	7.1	34
	Creamed Ground Beef	6.0	27
	Ground Sausage in Gravy	5.8	28
	Roast Beef Hash	5.7	25
	Western Scrambled Eggs (OFD)*	5.7	30
	Scrambled Eggs w/Bacon (OFD)	5.0	25
Meat Side Dishes	Pork Sausages	6.3	32
	Ham Slices	5.2	32
Starches	White Bread	6.8	27
	Corn Bread	6.6	23
	Wheat Bread	6.5	27
	Potatoes w/Bacon	6.0	34
	Biscuits	5.2	27
Spreads	<i>Jelly</i>	7.8	3
	<i>Peanut Butter</i>	7.2	2
Snacks	Pineapple Pound Cake	7.8	12
	Orange Pound Cake	7.7	29
	Vanilla Pound Cake	7.6	32
	Lemon Pound Cake	7.6	30
	Tea Loaf	6.8	29
Fruits	Fruit Cocktail	7.9	30
	Peach Slices	7.6	34
	Pineapple	7.4	28
	Canned Pears	7.4	21
Fresh Fruits	Apple	7.7	25
	Orange	7.4	13
	Pear	6.4	22
Cream Of Wheat	<i>Raisin, Dates & Nuts</i>	8.2	6
	<i>Maple & Brown Sugar</i>	6.9	9
	<i>Regular</i>	5.0	4
Beverages	Chocolate Milk	7.0	24
	<i>Cocoa</i>	7.0	5
	Orange Juice	6.8	28
	Coffee	6.7	10
	White Milk	6.2	25
	Grape Juice	6.1	28
Condiments	Blueberry Topping	7.4	22
	Hot Sauce	7.0	21
	Ranchero Sauce	6.9	25
	Salsa, Wet Pack	6.8	18
	Maple Syrup	6.7	32

* OFD - Oregon Freeze Dry developed eggs

Table 5A
Control Group
MRE XIII Lunch Acceptability Ratings (n=38)

<u>Food Groups</u>	<u>Food Item</u>	<u>Mean</u>	<u>N</u>
Entrees	Pork Chow Mein	7.9	11
	Ham Slices	7.8	13
	Spaghetti w/Meat Sauce	7.3	12
	Chicken Stew	7.3	12
	Smoky Franks	7.2	15
	Chicken w/Rice	7.1	13
	Beef Stew	6.0	10
	Esc Potatoes w/Ham	5.9	11
	<i>Corned Beef Hash</i>	5.6	9
	<i>Tuna w/Noodles</i>	5.2	9
	Pork w/Rice	5.1	15
	<i>Omelet w/Ham</i>	4.6	7
Starches	Chow Mein Noodles	7.8	10
	MRE Cracker	6.2	33
	<i>Potato Au Gratin</i>	5.3	9
Spreads	Peanut Butter	7.3	24
	Cheese Spread	6.9	24
	Jelly	6.6	20
Snacks	Lemon Pound Cake	8.4	19
	<i>Orange Pound Cake</i>	8.0	9
	<i>Pineapple Pound Cake</i>	8.0	3
	Vanilla Pound Cake	7.9	10
	Potato Sticks	7.6	16
	Chocolate Covered Cookie	7.2	20
	<i>Choco Mint Pond Cake</i>	7.0	2
	Chocolate Covered Brownie	6.1	13
	Oatmeal Cookie Bar	5.6	13
	<i>Peanuts</i>	4.0	1
Fruits	<i>Pineapples, WP*</i>	9.0	1
	<i>Peaches, WP</i>	9.0	1
	<i>Mixed Fruit</i>	8.3	9
	Applesauce	7.6	19
	<i>Peaches, FD*</i>	7.1	8
	<i>Pears, FD</i>	5.3	5
Beverages	<i>Lemon-Lime Bev Base</i>	8.1	6
	<i>Lemon-Lime, SF**</i>	7.8	4
	Lemonade, SF	7.7	11
	<i>Orange Bev Base</i>	7.7	7
	Cherry Bev Base	7.6	10
	<i>Tea, SF</i>	7.0	9
	Fruit Punch, SF	6.8	12
	Grape Bev Base	6.6	12
	<i>Coffee</i>	5.8	6
	Cocoa	5.7	11

* WP - Wet packed fruit, FD - Freeze Dried Fruit

** SF - sugar free

Table 5A (cont)
Control Group
MRE XIII Lunch Acceptability Ratings (n=38)

<u>Food Groups</u>	<u>Food Item</u>	<u>Mean</u>	<u>N</u>
Candy	M&M's	8.3	28
	<i>Tootsie Roll</i>	8.3	8
	Chocolate Bar	7.6	15
	Vanilla Caramels	7.5	15
	Charms	6.3	11
Acc Pack	Gum	7.6	33
	Hot Sauce	7.4	25
	Sugar	6.3	20
	Creamer	5.6	12
	Salt	5.3	12

Table 5B
Test Group
Test MRE Lunch Acceptability Ratings (n=39)

<u>Food Groups</u>	<u>Food Item</u>	<u>Mean</u>	<u>N</u>
Entrees	Teriyaki Beef	7.2	26
	Spicy Oriental Chicken	7.1	24
	Salsa Chicken	6.7	25
	Meatloaf w/Gravy	6.7	24
	Beef Enchiladas	6.6	23
	Sausage Patty	6.2	23
	Black Beans & Rice Burrito	6.1	28
	Pasta Primavera Alfredo	5.9	23
Starches	Chow Mein Noodles	6.9	26
	Buttered Noodles	6.8	24
	MRE Crackers	6.5	32
	Vegetables MRE Cracker	6.5	32
	Mexican Rice	6.1	19
	White Rice	5.5	28
Spreads	Jalepeno Cheese Spread	7.7	28
	Strawberry Jam	7.4	30
	Cheddar Cheese Spread	7.2	22
	Peanut Butter	6.7	31
Snacks	<i>Choco Chip Bar</i>	8.4	8
	Apple Fruit Bar	8.1	16
	Strawberry Fruit Bar	8.0	16
	Lemon Pound Cake	7.9	27
	Blueberry Fruit Filled Bar	7.9	17
	Roasted Peanuts	7.7	27
	Snack Mix	7.7	20
	Honey Nut Bar	7.7	17
	Beef Jerky	7.6	25
	Apple Cinnamon Toaster Pastry	7.6	24
	Corn Chips	7.4	24
	Fudge Brownie	7.4	23
	Shortbread Cookies	7.3	22
	Chewy Chocolate Bar	6.3	23
	<i>Peanut Butter Bar</i>	6.0	7
Fruits	Fruit Mix	7.8	22
	Cinnamon Apples	7.6	25
	Applesauce	7.2	21
Beverages	Lemon Tea	7.7	24
	<i>Grape Bev</i>	7.6	7
	Lemon-Lime Bev	6.7	17
	<i>English Tea Time</i>	6.7	6
	<i>Coffee</i>	6.7	5
	Earl Gray Tea	6.2	16
	<i>Cocoa</i>	6.0	3
	Apple Cider	5.8	22
Acc Packs	Gum	7.3	33
	BBQ Sauce	7.0	25
	Hot Sauce	6.9	26
	Sugar	6.0	22
	Salt	5.1	17
	Creamer	5.0	16

Table 6A
Control Group
H&S Dinner Acceptability Ratings (n=38)

<u>Food Group</u>	<u>Food Item</u>	<u>Mean</u>	<u>N</u>
Entrees	Meatballs and Gravy	7.1	37
	Spaghetti and Meatballs	7.1	33
	BBQ Pork Ribs	7.0	35
	Lasagna	6.7	35
	Beef Strips w/Peppers	6.6	35
	Beef Patties	6.4	37
	Chicken Breast w/Gravy	6.4	33
	Turkey Slices	6.4	31
	Chicken Chow Mein	6.3	36
Vegetables	Corn	6.9	35
	Mixed Vegetables	5.9	29
	Green Beans	5.7	34
	Sweet Potatoes	5.7	27
Starches	Wheat Bread	7.1	27
	White Bread	7.1	36
	White Rice	6.9	36
	Pork and Beans	6.6	33
	Red Beans & Rice	6.0	34
	Potatoes w/Butter Sauce	6.0	31
	Oriental Rice	5.9	35
	Hamburger Buns	5.2	30
Spread	Jelly	7.3	25
	Peanut Butter	7.3	25
	Cheese Spread	6.7	17
Snacks	Orange Pound Cake	7.7	24
	Blueberry Dessert	6.9	22
	Marble Cake w/Topping	6.7	21
	Yellow Cake w/Topping	6.3	33
	Chocolate Cake w/Topping	6.2	35
Fruits	Peach Slices	8.1	35
	Fruit Cocktail	7.8	28
Fresh Fruit	Apple	7.1	13
	Pear	7.1	16
Beverages	Cherry Beverage	7.9	19
	Chocolate Milk	7.4	25
	Lemon-Lime Beverage	7.4	31
	Orange Beverage	7.4	22
	White Milk	7.2	18
	Cocoa	7.0	1
	Coffee	7.0	4
Condiments	Hot Sauce	8.0	13

Table 6B
Test Group
H&S Dinner Acceptability Ratings (n=39)

<u>Food Group</u>	<u>Food Item</u>	<u>Mean</u>	<u>N</u>
Entrees	Chili w/Beans	6.8	33
	Chicken Teriyaki	6.8	26
	BBQ Pork Ribs	6.6	32
	Braised Beef w/Noodles	6.5	35
	Turkey Slices w/Gravy	6.3	31
	Cajun Meatloaf	5.9	33
	Fankfurters	5.7	32
	Tamale Pie	5.7	25
	Chicken Breast w/Gravy	5.6	35
Vegetables	Corn	6.5	36
	Green Beans	6.2	36
	Mixed Vegetables	6.1	27
	Sweet Potatoes	5.9	24
	Carrots	5.9	15
	Three Bean Salad	5.1	12
Starches	White Bread	7.0	36
	Oriental Rice	6.9	26
	Corn Bread	6.6	32
	Wheat Bread	6.6	19
	White Rice	6.5	36
	Spanish Rice	6.3	37
	Hamburger Buns	6.3	23
	Red Beans & Rice	6.2	32
	Pork and Beans	6.2	31
	Potatoes w/Butter Sauce	5.6	29
Spread	Peanut Butter	7.5	10
	Jelly	7.4	12
Snack	Butterscotch Pudding	7.4	20
	Tea Loaf	7.4	27
	Chocolate Pudding	7.4	25
	Orange Pound Cake	7.4	16
	Choco Mint Pound Cake	6.8	24
	Cherry Pie Filling	6.7	16
	Tapioca Pudding	6.5	17
Fruit	Canned Pears	7.4	23
	Tropical Fruit Salad	7.3	27
Fresh Fruit	Apple	7.6	25
	Orange	7.3	15
	Pear	7.3	12
Beverages	Grape Beverage	7.6	15
	Chocolate Milk	7.3	17
	Coffee	7.3	3
	Lemon-Lime Beverage	6.9	30
	Cherry Beverage	6.9	26
	White Milk	6.5	12
Condiments	Hot Sauce	6.9	16

RATION ACCEPTABILITY BY FOOD GROUP

For analysis of food groups, food items served during the evaluation were combined into foodgroups as seen in Tables 4 through 6. Each food group mean was calculated using the daily food acceptance ratings from the MRE Intake Records and the H&S ration acceptability forms. The ratings were collapsed by food group. Table 7 shows the acceptability of these food groups by meal. It should be noted that all calculated mean food group acceptability ratings were above 5.0.

Control Group: The breakfast foodgroups received mean ratings ranging from 5.5 to 8.4 with a median of 7.5. The highest rated breakfast H&S item was hot cereal, while the entrees received the lowest rating for that meal. The mean dinner food groups ranged from 6.2 to 8.0 and had a median of 7.4. Vegetables were the lowest rated and fruit the highest. For the MRE, the ratings ranged from 6.4 to 7.2 with a median of 6.9. The fruits and condiments were rated the highest (7.2), while the starches were the lowest rated foodgroup of this ration with a mean rating of 6.4.

Test Group: The food groups for the breakfast meal had mean acceptability ratings ranging from 5.8 to 7.9, with a median score of 7.4. Cold cereal received the highest rating (7.5) while the meat side dishes received the lowest rating (5.8). The dinner meal acceptability ratings ranged from 6.2 to 7.6 with a median of 7.05. Similar to the control group, vegetables received the lowest acceptability rating. The highest rated food group was the spreads. The MRE evaluated by the test group was also well received, with acceptability ratings from 6.4 to 7.4 and a median of 6.9. The entree and starches were rated the lowest and the snacks available to this group were the highest rated food group.

Table 7
Food Group Acceptability Ratings

H&S Breakfast	<u>Control</u>	<u>Test</u>
Entrees	5.5	6.1
Meat Side Dishes	6.4	5.8
Starch	6.8	6.1
Spread	7.6	7.3
Snacks	7.7	7.5
Fruit	7.6	7.6
Fresh Fruit	7.8	7.4
Hot Cereal (oatmeal)	8.4	7.4
Beverages	7.1	6.9
Condiments	6.9	7.0
Cold Cereal	7.5	7.9
MRE Lunch	<u>Control</u>	<u>Test</u>
Entrees	6.5	6.4
Starch	6.4	6.4
Spread	6.9	7.1
Snacks	7.1	7.4
Beverages	6.9	6.7
Fruit	7.2	7.3
Condiments	7.2	6.9

Table 7 (cont.)
Food Group Acceptability Ratings

H&S Dinner	<u>Control</u>	<u>Test</u>
Entrees	6.9	6.2
Vegetables	6.2	6.2
Starch	6.6	6.6
Spread	7.4	7.6
Snacks	6.6	7.1
Fruit	8.0	7.3
Fresh Fruit	7.4	7.5
Beverages	7.4	7.0
Condiments	7.8	7.2
Salad	6.7	6.5

CALORIE AND NUTRIENT INTAKE

Calorie and nutrient intake were computed on the basis of the MRE Intake Forms, the Visual Estimation Forms and the known caloric and nutrient composition of the ration food items. Table 8 shows the average daily intakes of calories, protein, fat, carbohydrates, sodium, and the percentages of calories derived from protein, fat and carbohydrates. Also in the table below is the Nutritional Standards for Operational Rations (NSOR) which is the military recommended dietary allowances (MRDA) for military personnel. The MRDA is the daily recommended nutrient intake levels, based on estimated nutritional requirements, of 17-to 50-year-old moderately active military personnel. This information can be found in Army Reg. 40-25, The Naval Command Medical Instruction 10110.1, Airforce Reg. 160-95 Nutritional Allowance, Standards, and Education dated 15 May 1985. Detailed tables showing the daily intakes along with percentages from each meal can be seen in Appendix C. In Table 8 it is shown that the test group consumed slightly more kilocalories (KCALs) than the control group, although both groups fell below the NSOR minimum requirement of 3600. Since pogeys were rarely reported, these values for the test and control group represent minimal values for the KCALS and nutrients reported in Table 8. The majority of past field evaluations report the daily caloric intake to fall below the NSOR, the average of the field evaluations from 1986 to 1993 is 2678 calories. Sodium intake also fell below the NSOR in both groups and the fat intake approximated the recommended maximum.

Table 8
Average Daily Intake by Group

	<u>Control</u>	<u>Test</u>	<u>NSOR</u>
Kcals	2468	2658	3600
Fat	95	108	160
Protein	101	93	100
Carbohydrates	307	332	440
Sodium	4113	4391	7000
% Fat	34.3%	36.5%	35%
% Protein	16.2%	13.9%	-----
% Carbohydrates	49.5%	49.6%	50%

CALORIC INTAKE BY RATION

The table below shows the KCAL intake broken down by meal and food group. The percent daily KCALs (% Daily) consumed are the KCALs divided by the total mean calories consumed (see Table 9) yielding the percent of calories consumed per foodgroup broken down by meal, e.g 11% of a total calories consumed came from the H&S breakfast meal entree. When the calories consumed for each food group are broken down by meal (% by Meal), the data indicates most calories per meal are from the entree for all three meals, 27% at breakfast, 24% at lunch and 23% at dinner. The majority of calories came from the breakfast H&S meal while the soldiers consumed the least amount of calories from the MRE lunch. Overall, the highest percent of calories consumed were from the entrees, while starches, snacks and drinks provided the next most KCALs. Table 9 also shows a greater MRE consumption in the test group, accounting for most of the differences in average daily caloric intake in the two groups.

Table 9
KCAL Intake and Percent of Caloric Intake

	<u>Control</u>			<u>Test</u>		
	<u>KCAL</u>	<u>% Daily</u>	<u>% By Meal</u>	<u>KCAL</u>	<u>% Daily</u>	<u>% By Meal</u>
H&S Breakfast	1007	41		966	36	
Entrees	270	11	27	242	9	25
Meat Side Dishes	121	5	12	87	3	9
Hot Cereal	24	1	2	20	.7	2
Starch	142	6	14	135	5	14
Snacks	164	7	16	221	8	23
Spread	6	.2	.6	3	.1	.3
Drinks	182	7	18	131	5	14
Fruit	41	2	4	38	2	4
Condiments	31	1	3	34	1	4
Fresh Fruit	15	.6	1	36	1	4
Cold Cereal	10	.4	1	18	.7	2
MRE Lunch	573	23		813	31	
Entrees	137	5	24	192	7	24
Starch	93	4	16	174	7	21
Snacks	128	5	22	247	9	30
Spread	78	3	14	128	5	16
Drinks	34	1	6	36	1	4
Fruit	19	.8	3	27	1	3
Candy	78	3	14	N/A	-	-
Condiments	7	.3	1	9	.3	1
H&S Dinner	886	36		875	33	
Entrees	208	8	23	238	9	27
Vegetables	51	2	6	40	2	5
Fruit	42	2	5	11	.4	1
Starch	205	8	23	252	10	29
Snacks	123	5	14	102	4	12
Spread	59	2	7	30	1	3
Drinks	133	5	15	107	4	12
Condiments	20	.8	2	9	.3	1
Fresh Fruit	16	.7	2	21	.8	2
Salad	28	1	3	62	2	7

RATION VARIETY

Prior to the evaluation, the test participants rated the variety of the rations they typically eat during field exercises. This same question was again addressed on the final questionnaire. The 7-point scale displayed below was used to rate variety. Tables 11 and 12 report the mean variety rating from the background questionnaire (Pretest) and the final questionnaire (Posttest). These soldiers received MRE XIII/XVI (control group) and a ration of all test items (test group). Typically, outside of the test, they consumed MRE XII or earlier version.

Overall, the majority of variety ratings of the food groups increased at least slightly from pretest ratings to posttest ratings. The ratings by the control group on the MRE showed little to no change, and two of the food groups showed a slight negative change while test group ratings all showed a positive change. The most noticeable change was the H&S cake foodgroup ratings by the control group. The cakes went from the lowest rated food group pretest to the highest rated food group posttest. The overall ration variety ratings all increased by at least 1/2 of a scale point, except the MRE ratings by the control group which increased by only one-tenth.

Table 10
MRE Variety Scale

Extremely Too Little Variety 1	Moderately Too Little Variety 2	Slightly Too Little Variety 3	Just Right 4	Slightly Too Much Variety 5	Moderately Too Much Variety 6	Extremely Too Much Variety 7
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Table 11
MRE Variety Ratings

	Control Group		Test Group	
	Pre-Test	Post -Test	Pre-Test	Post -Test
Entrees	3.2	3.3	2.9	3.7
Crackers	3.4	3.3	3.0	3.5
Spreads	3.0	3.3	3.0	3.5
Desserts	2.8	2.8	2.9	3.5
Cakes	2.8	3.2	2.9	3.5
Fruits	3.0	3.1	2.7	3.6
Snacks	3.0	3.1	2.8	3.4
Beverages	2.9	2.9	2.8	3.2
Candy	3.3	3.2	2.8	3.7
Overall	3.1	3.2	3.1	3.7

Table 12
H & S Variety Ratings

	Control Group		Test Group	
	Pre-Test	Post -Test	Pre-Test	Post -Test
Breakfast Entree	2.6	3.0	2.6	3.3
Dinner Entrees	3.0	3.5	2.8	3.6
Vegetables	3.3	3.4	2.8	3.7
Starch	3.2	3.5	3.3	3.7
Cakes	2.2	3.6	2.9	3.7
Desserts	2.5	3.0	2.9	3.5
Fruits	2.8	3.4	2.8	3.4
Beverages	2.6	2.9	2.7	3.2
Candy	2.5	2.9	2.6	2.8
Overall	2.6	3.4	2.7	3.6

HEATING

In both control and test groups, slightly more than half (58%) of the MRE entrees consumed were heated. Table 13 and 14 reports the percent of soldiers that heated each MRE entree. Typically, most entrees were heated before eating. Entrees such as Pork with Rice, Corned Beef Hash, Ham Slices, and Potatoes w/Ham were more often consumed not heated than heated by the control group. Overall, a higher percentage of entrees was heated by the test group (69%) than the control group (58%).

Table 13
Control Group
Percent of soldiers heating entrees

	<u>Percent Yes</u>	<u>Percent No</u>	<u>N</u>
Omelet w/Ham	100	-	5
Chicken Chow Mein	89	11	18
Chicken Stew	85	15	13
Pork Chow Mein	80	20	15
Spaghetti w/Meat Sauce	70	30	20
Smoky Franks	63	37	24
Beef Stew	50	50	12
Tuna w/Noodles	50	50	10
Potatoes w/Ham	46	54	11
Ham Slices	39	61	18
Pork w/Rice	29	71	17
Corned Beef Hash	19	81	16

Table 14
Test Group
Percent of soldiers heating entrees

	<u>Percent Yes</u>	<u>Percent No</u>	<u>N</u>
Teriyaki Beef	80	20	41
Beef Enchiladas	77	23	30
Pasta Primavera Alfredo	77	23	26
Spicy Oriental Chicken	73	27	29
Sausage Patty	70	30	32
B. Bean & Rice Buritto	69	31	33
Salsa Chicken	69	31	32
Meatloaf	68	32	37

PORTION SIZE

Using the 7-point scale shown in Table 15, portion sizes of the ration entree and the size of the complete meals of both the MRE and H&S rations were rated. The meal size was rated at each meal while the entree portion size was rated on the final questionnaire. See Appendix D for a complete listing of the portion size ratings. All MRE and H&S entrees rated received ratings around the scale midpoint of "Just Right" ranging from 3.4 to 4.2. Of all the entrees rated, the H&S blueberry waffles, a well liked entree, received the lowest rating for portion size.

Ratings for the meal size also fell around the midpoint of the scale. The MRE meal ratings ranged from 3.1 to 4.0 and the range for the H&S meals were 3.4 to 3.9 for the breakfast meal and 3.6 to 3.9 for the dinner meal. The amount of food in the MRE sausage patty meal received the lowest rating, 3.1.

Table 15
Portion Size Scale

Much Too Small	Moderately Too Small	Somewhat Too Small	Just Right	Somewhat Too Large	Moderately Too Large	Much Too Large
1	2	3	4	5	6	7

HOT SAUCE PACKAGE

The hot sauce in the MREs distributed to the test group were packaged in a prototype container. This container was made of a flexible plastic material, Polyvinylidene Chloride. The data indicates that the glass and prototype package did not perform differently in the field in most areas. Areas where there were differences in ratings were spilling/splashing of the hot sauce while opening, taste of the hot sauce and appropriateness of the amount of trash generated.

Spilling/splashing while opening occurred more with the test group using the pouch container than with the control group using the glass container. Forty-eight percent of the soldiers from the test group reported spilling and splashing from the pouch while only 4% from the control group reported spilling/splashing from the glass container. In general, spilling/splashing was experienced only once by a given soldier from both container types. Of the soldiers that did experience spilling/splashing, the majority (test 71%, control 100%) did not find this to be a problem.

The taste of the hot sauce was addressed by the soldiers using the pouch container during the focus group. Several soldiers reported that the hot sauce in the pouch tasted milder than the hot sauce they remembered in the glass container. They indicated that the hot sauce appears to be absorbed into the plastic packaging, discoloring the package.

Once the test group evaluated the plastic hot sauce container for 10 days they were asked which container they preferred, glass or pouch. Forty-eight percent preferred the glass container while 52% preferred the plastic pouch. The soldiers that preferred the glass container rated the taste of the hot sauce (7 point scale with anchors 1 = "Very Poor", 7 = "Very Good") in the pouch as 4.8 while the soldiers that preferred the pouch rated the taste (in the pouch) as 5.7. Though these means are not significantly different it suggest that the soldiers did consider taste when making a choice among the containers.

Another notable difference was the response to whether the soldiers wanted a reclosable container. The majority (59%) of the control group responded YES to that question along with the majority (59%) of the test group. The responses of the test group also show that, of the soldiers that preferred the plastic pouch, 40% preferred a reclosable container. Among the soldiers that preferred glass, 79% preferred a reclosable container.

The test group evaluated trash generated for both the glass and plastic pouch container. A 7-point scale with anchors "Extremely Inappropriate" to "Extremely Appropriate" was used to evaluate this attribute. These soldiers rated trash generated by the glass container (4.1) significantly less appropriate than the trash generated by the pouch (4.9). Though they are significantly different, they both fall above "Neither Inappropriate Nor Appropriate", the midpoint of the scale. Also, soldiers from the test group that preferred the plastic pouch rated the amount of trash generated by the glass container as more inappropriate than the amount of trash generated by the pouch (glass 3.7, pouch 4.9) while the soldiers who preferred the glass container found the amount of trash generated by the two containers as similar, glass 4.6, pouch 4.9.

BODY WEIGHT

The OTSG guidance suggests that the troops should not lose more than 3% of their initial body weight during field operations. Of all the soldiers that participated in this field evaluation, no soldier exceeded this 3% limit of weight loss. An interval, bounded by a weight gain or loss of at least 2%, contains 89% of the soldiers from the control group, while 71% from the test group showed less than 2% weight change. A higher number of soldiers from the test group (7 out of 34) gained 2% or more of their original weight, while only 2 out of 35 soldiers in the control group gained 2% or more of their original weight.

CONCLUSIONS

- Most H&S breakfast and dinner items received acceptability ratings above 5.0, the mid-point of the 9 point acceptability scale. The acceptability ratings of the eggs served to the control group indicate the need for continued development to increase soldiers' acceptability of this product. The number of soldiers that received the Cream of Wheat oatmeals are low because of the availability of the items, they were not distributed to the remote feeding sites by the MKT. These items, once received at the remote sites, were very well received by the soldiers. If the availability of this item increased, the number of soldiers consuming the oatmeal would also increase.
- All MRE items (rated by more than 10 soldiers) were well received. The data indicates the variety in the ration is acceptable.
- Variety ratings showed the most positive change for the test MRE reflecting the higher number of new food items offered. Variety ratings were similar for the test and control H&S ration.
- Consistent with past field trials, average daily intake in the breakfast and dinner H&S meals was similar for the two groups.
- As tested here, consumption of the test MRE was significantly higher in the test group compared to the control group.
- Positive findings of nutrient intake include fat and sodium intake levels falling somewhat below the recommend NSOR, while less desirable findings include the overall caloric intake falling below the NSOR 1000 to 1100 calories.
- Portion sizes, as seen before, were generally rated close to, but slightly less than, "Just Right".
- The two hot sauce containers, glass and pouch, performed well and similarly in the field. Ease of use and durability were viewed as appropriate for field use. Soldiers generally indicated that the trash generated by the plastic pouch was more appropriate than the bottle. Given these similar performances, these data provide a basis for use of the pouch and no strong basis for keeping the glass bottle. The apparent absorption of hot sauce by the pouch may warrant further investigation to explore the impact on the life of both product and package. Analysis of hot sauce before and after storage in glass and pouch may indicate any flavor/chemical composition changes.
- Overall, soldiers did not show major weight gain or loss during this evaluation.

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APPENDICES

APPENDIX A
MENUS

Control Menu
Meal, Ready to Eat XIII

Menu 1

Pork W/Rice
Applesauce
MRE Cracker
Jelly
Sugar Free Beverage Base
Beverage Base
Cocoa Beverage
Acc Pkt B

Menu 2

Corned Beef Hash
FD Fruit*
MRE Cracker
Jelly
Oatmeal Cookie Bar
Cocoa Beverage
Acc Pkt B

Menu 3

Chicken Stew
TS Fruit*
MRE Cracker
Peanut Butter
Candy
Cocoa Beverage Powder
Beverage Base
Acc Pkt A

Menu 4

Omlet w/Ham
Potato Au Gratin
MRE Cracker
Jelly
Oatmeal Cookie Bar
Candy
Cocoa Beverage
Sugar Free Beverage Base
Acc Pkt A

Menu 5

Spaghetti W/Meat Sauce
MRE Cracker
Cheese Spread
Pound Cake
Candy
Sugar Free Beverage Base
Acc Pkt A

Menu 6

Smoky Franks
TS Fruit*
MRE Cracker
Peanut Butter
Potato Sticks
Candy
Cocoa Beverage
Sugar Free Beverage Base
Acc Pkt A

Menu 7

Beef Stew
MRE Cracker
Peanut Butter
Pound Cake
Fudge Brownie
Beverage Base
Acc Pkt A

Menu 8

Ham Slice
Potato Au Gratin
MRE Cracker
Choc Cov Brownie
Cocoa Beverage
Beverage Base
Acc Pkt A

Control Menu (cont)
Meal, Ready to Eat XIII

Menu 9

Pork Chow Mein
TS Fruit
MRE Cracker
Peanut Butter
Chow Mein Noodles
Choc Cov Cookie
Beverage Base
Acc Pkt A

Menu 11

Chicken w/Rice
MRE Cracker
Cheese Spread
Choc Cov Cookie
Candy
Beverage Base
Acc Pkt A

Menu 10

Tuna w/Noodles
MRE Cracker
Jelly
Pound Cake
Candy
Beverage Base
Acc Pkt A

Menu 12

Escalloped Potato w/Ham
Applesauce
MRE Cracker
Cheese Spread
Choc Cov Brownie
Cocoa Beverage
Sugar Free Beverage Base
Acc Pkt A

* FD = Freeze Dried
TS = Thermostabilized

Accessory Packet A: Coffee, Creamer, Sugar, Salt, Gum, Matches, Tissue, Towelette
Accessory Packet B: Coffee, Creamer, Sugar, Salt, Gum, Matches, Tissue, Towelette, Candy

Each MRE contains a small bottle of Hot Sauce and FRH

Test Menu
Meal, Ready to Eat

Menu 1

Teriyaki Beef
Cinnamon Apples
MRE Cracker
Jalapeno Cheese Spread
Shortbread Cookies
Chow Mein Noodles
Lemon Tea Mix
Acc Pkt A

Menu 3

Beef Enchilada
Mexican Rice
MRE Cracker
Peanut Butter
Apple Cinnamon Toaster Pastry
Corn Chips
Apple Cider Mix
Acc Pkt A

Menu 5

Salsa Chicken
White Rice
Vegetable Cracker
Straw. Jelly & Peanut Butter
Fruit Filled Bar
Beverage Base
Acc Pkt A

Menu 7

Bean & Rice Burrito
Vegetable Cracker
Jalapeno Cheese Spread
Mixed Fruit
Lemon Pound Cake
Roasted Sweetened Peanuts
Apple Cider Mix
Acc Pkt A

Menu 2

Meatloaf w/Gravy
Buttered Noodles
Vegetable Cracker
Cheddar Cheese Spread
Fudge Brownie
Beverage Base
Earl Grey Tea
Acc Pkt A

Menu 4

Spicy Oriental Chicken
White Rice
MRE Cracker
Peanut Butter
Chewy Chocolate Bar
Beef Strip Steak
Apple Cider Mix
Earl Grey Tea
Acc Pkt A

Menu 6

Pasta Prima Alfredo
Vegetable Cracker
Straw. Jelly & Peanut Butter
Fruit Filled Bar
Snack Mix
Lemon Tea Mix
Cocoa Beverage
Acc Pkt A

Menu 8

Sausage Patty
Barbeque Sauce
Vegetable Cracker
Straw. Jelly & Peanut Butter
Granola Bar
Applesauce
Apple Cider Mix
Acc Pkt A

* FD = Freeze Dried
TS = Thermostabilized

Accessory Packet A: Coffee, Creamer, Sugar, Salt, Gum, Matches, Tissue, Towelette
Accessory Packet B: Coffee, Creamer, Sugar, Salt, Gum, Matches, Tissue, Towelette, Candy

Each MRE contains a small bottle of Hot Sauce and FRH

Heat & Serve Ration Breakfast Menus

Control Menu

Day 1	West. Scrambled Eggs (Natick) Ranchero Sauce Potatoes w/Bacon Pieces Oatmeal, Plain Peaches Orange Juice Wheat Bread Cold Cereal Apples PB & J * Hot Sauce
Day 2	Creamed Ground Beef Potatoes w/Bacon Pieces Lemon Pound Cake Oatmeal, Raisin & Spice Grape Juice Apples W/W Bread W/C Milk***
Day 3	Plain Waffles Maple Syrup Ham Slices Apple Dessert Pineapple Pound Cake Orange Juice
Day 4	Scrambled Eggs w/Bacon(Natick) Pork Sausage Links Pears Vanilla Pound Cake Hot Sauce Cold Cereal Grape Juice

Test Menu

West. Scrambled Eggs (OFD) Ranchero Sauce Potatoes w/Bacon Pieces Cream of Wheat, plain Peaches Orange Juice W/W Bread** Cold Cereal Apples PB & J
Ground Sausage in Gravy Potatoes w/Bacon Pieces Lemon Pound Cake Oatmeal, Raisin, Walnuts, & Dates Grape Juice Apples W/W Bread W/C Milk Biscuits Cold Cereal
Blueberry Waffles Maple Syrup Ham Slices Pineapple Pineapple Pound Cake Orange Juice Cream Of Wheat, Maple & B. Sugar Oranges Wheat Bread W/C Milk
Scrambled Eggs w/Bacon (OFD) Pork Sausage Links Pears Vanilla Pound Cake Tea Loaf w/Walnuts Cold Cereal Orange Juice W/C Milk W/W Bread

- * PB&J - Peanut Butter and Jelly
- ** W/W - Wheat and White Bread
- *** W/C - White and Chocolate Milk

Heat & Serve Ration (Cont) **Breakfast Menus**

Day 5	Corned Beef Hash Ham Slices Apple Dessert Oatmeal, Maple & B. Sugar Lemon Pound Cake Orange Juice W/C Milk W/W Bread Apple Cocoa	Roast Beef Hash Ham Slices Peaches Cream Of Wheat,Cinn & B. Sugar Corn Bread Orange Juice W/C Milk W/W Bread Oranges Cocoa
Day 6	Plain Waffles Maple Syrup Pork Sausage Links Peaches Lemon Pound Cake Grape Juice Pears W/W Bread W/C Milk Cocoa	Blueberry Waffles Maple Syrup Pork Sausage Links Blueberry Topping Lemon Pound Cake Grape Juice Oranges Wheat Bread W/C Milk Cocoa
Day 7	West. Scrambled Eggs (Natick) Ham Slices Fruit Cocktail Pineapple Pound Cake Grape Juice Wheat Bread W/C Milk	West. Scrambled Eggs (OFD) Ham Slices Fruit Cocktail Tea Loaf w/Walnuts Grape Juice Wheat Bread W/C Milk Cocoa
Day 8	Creamed Ground Beef Potatoes w/Bacon Pieces Vanilla Pound Cake Orange Juice Oranges Oatmeal, Raisin & Spice Oatmeal, Maple & Brown Sugar W/W Bread W/C Milk	Creamed Ground Beef Potatoes w/Bacon Pieces Orange Pound Cake Orange Juice Apples Oatmeal, Raisin Dates & Nut W/W Bread W/C Milk Biscuit
Day 9	Scrambled Eggs w/Bacon & Cheese(Natick) Ranchero Sauce Ham Slices Apple Dessert Vanilla Pound Cake Orange Juice	Scrambled Eggs w/Bacon (OFD) Salsa Ham Slices Pineapple Vanilla Pound Cake Orange Juice Apples Wheat Bread W/C Milk Oatmeal, Raisin, Dates & Nut

Heat & Serve Ration Dinner Menus

Control Menu

Day 1 Chicken Breast w/Gravy
Sweet Potatoes
Corn
Orange Pound Cake
Lemon-Lime Beverage
Pears, FF*
Salad, Salad Dressing
W/C Milk
PB & J

Day 2 Lasagna
Green Beans
Peaches
Orange Beverage
Apples, FF
Salad, Salad Dressing
W/W Bread
W/C Milk
PB & J

Day 3 Meatballs w/Brown Gravy
White Rice
Mixed Vegetables
Chocolate Cake w/Topping
Cherry Beverage
W/W Bread
Salad, Salad Dressing
PB & J

Day 4 Boneless BBQ Pork Ribs
Hamburger Buns
Red Beans & Rice
Peaches
Yellow Cake w/Topping
Cherry Beverage
White Bread
PB & J

Day 5 Beef Strips w/Peppers
Potatoes w/Butter Sauce
Green Beans
Choco Cake w/Topping
Cherry Beverage
W/W Bread
W/C Milk
Salad, Salad Dressing
PB & J
Cocoa

* FF - Fresh Fruit

Test Menu

Chicken Breast w/Gravy
Sweet Potatoes
Corn
Orange Pound Cake
Lemon-Lime Beverage
Oranges
Salad, Salad Dressing
W/W Bread
PB & J

Braised Beef w/Noodles
Green Beans
Chocolate Pudding
Cherry Beverage
Apples
Salad, Salad Dressing
W/W Bread
W/C Milk

Meatloaf, Cajun Style
Spanish Rice
Mixed Vegetables
Corn Bread
Grape Beverage
Apples
W/W Bread
Salad, Salad Dressing
PB & J

Boneless BBQ Pork Ribs
Hamburger Buns
Red Beans & Rice
Choco Mint Pound Cake
Tea Loaf w/Walnuts
Cherry Pie Filling
Cherry Beverage
W/W Bread
Salad

Beef Tamale Pie
Spanish Rice
Carrots
Corn Bread
Tropical Fruit Salad
Cherry Beverage
Salad, Salad Dressing

Heat & Serve Ration (Cont) **Dinner Menus**

Control Menu

Day 6 Chicken Chow Mein
 Oriental Rice
 Green Beans
 Choco Cake w/Topping
 Cherry Beverage
 Salad, Salad Dressing
 PB & J

Day 7 Beef Patties
 Hamburger Buns
 Pork & Beans
 Fruit Cocktail
 Cheese Spread
 Cherry Beverage
 PB & J

Day 8 Spaghetti & Meatballs
 Corn
 Marble Cake w/Topping
 Cherry Beverage
 Salad
 PB & J

Day 9 Turkey Slices w/Gravy
 Potatoes Diced in Butter Sauce
 Mixed Vegetables
 Yellow Cake w/Topping
 Blueberry Dessert
 Cherry Beverage
 PB & J

Test Menu

Chicken Teriyaki
 Oriental Rice
 Mixed Vegetables
 Tapioca Pudding
 Cherry Beverage
 W/W Bread
 W/C Milk
 Salad, Salad Dressing
 Cocoa

Beef Franfurters
 Pork & Beans
 Three Bean Salad
 Butterscotch Pudding
 Grape Beverage
 Salad
 W/W Bread
 W/C Milk

Chili w/Beans
 White Rice
 Corn
 Corn Bread
 Lemon-Lime Beverage
 Grape Beverage
 Pears, canned
 Pears, FF
 W/W Bread
 W/C Milk
 Salad, Salad Dressing

Turkey Slices w/Gravy
 Potatoes Diced in Butter Sauce
 Mixed Vegetables
 Tea Loaf w/Walnuts
 Lemon-Lime Beverage
 White Milk
 Salad, Salad Dressing

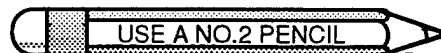
APPENDIX B
QUESTIONNAIRES

Your Initials: _____.

ID: _____

BACKGROUND QUESTIONNAIRE

Please read each question carefully. Mark your answers by filling in the circle(s) next to the correct answer.



Proper Mark

1. Your rank:

	1	2	3	4	5	6	7	8	9
E	☐	☐	☐	☐	☐	☐	☐	☐	☐
O	☐	☐	☐	☐	☐	☐	☐	☐	☐
W	☐	☐	☐	☐	☐	☐	☐	☐	☐

2. What is your gender?

☐ Male
☐ Female

3. Have you been deployed? ☐ YES ☐ NO

IF YES, Please fill in the circles(s) for your deployments.

☐ Saudi Arabia	☐ Vietnam
☐ Somalia	☐ Macedonia
☐ Grenada	☐ Sinai
☐ Panama	☐ Bosnia
☐ Haiti	☐ Other _____

4. How long have you been in the armed services?

_____ Years _____ Months

5. What is your age? _____ years

6. What is the highest level of education you have completed ?

☐ Finished grade school
☐ Some high school
☐ High school graduate or grad equivalent
☐ Some college
☐ College graduate

7. What is your ethnic background?

☐ White
☐ Black
☐ Hispanic
☐ Asian/Pacific Islander
☐ American Indian/ Alaskan Native
☐ Other (please specify) _____

8. In what part of the country have you lived the longest? (fill in appropriate circle)

☐ New England (ME, NH, VT, MA, CT, RI)
☐ Middle Atlantic (NJ, NY, PA)
☐ South Atlantic (DE, MD, VA, WV, NC, SC, GA, FL, DC)
☐ North Central (OH, IN, IL, MI, WI, MN, IA, MO, ND, SD, NE, KS)
☐ South Central (KY, TN, AL, MS, AR, LA, OK, TX)
☐ Mountain (ID, WY, CO, MT, AZ, NM, UT, NV)
☐ Pacific (WA, OR, CA, AK, HI)
☐ Other (please specify) _____

DO NOT WRITE BELOW THIS LINE

GRP

☐	☐	☐	☐
--------------------------	--------------------------	--------------------------	--------------------------

E T C

ID

☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
0	1	2	3	4	5	6	7	8	9

Q4

☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
0	1	2	3	4	5	6	7	8	9

Q3

☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
0	1	2	3	4	5	6	7	8	9

Q5

☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Q7

☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
0	1	2	3	4	5	6	7	8	9

Q8

☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Please answer the following questions on the MRE you typically eat during field exercises.

9. Please rate the variety of the food groups listed below for the MRE.

	Extremely Too Little Variety 1	Moderately Too Little Variety 2	Slightly Too Little Variety 3	Just Right 4	Slightly Too Much Variety 5	Moderately Too Much Variety 6	Extremely Too Much Variety 7	
	1	2	3	4	5	6	7	IF TOO LITTLE (ratings of 1, 2, or 3) please explain how to increase variety
Entree	☐	☐	☐	☐	☐	☐	☐	
Starches	☐	☐	☐	☐	☐	☐	☐	
Crackers	☐	☐	☐	☐	☐	☐	☐	
Spreads	☐	☐	☐	☐	☐	☐	☐	
Desserts	☐	☐	☐	☐	☐	☐	☐	
Cakes	☐	☐	☐	☐	☐	☐	☐	
Fruits	☐	☐	☐	☐	☐	☐	☐	
Snacks	☐	☐	☐	☐	☐	☐	☐	
Drinks	☐	☐	☐	☐	☐	☐	☐	
Candy	☐	☐	☐	☐	☐	☐	☐	
Overall MRE	☐	☐	☐	☐	☐	☐	☐	

10. How many different menus would you like to see in the MRE? Please choose one.

- ☐ 12 or less
☐ 13-16
☐ 17-20
☐ 21-24
☐ 25 or more

11. Would you like any food items dropped from the MRE? ☐ YES ☐ NO
IF YES, what food items would you like dropped from the MRE? Please list below.

12. Please list food items you would like added to the MRE in the following categories. Please be realistic.

Entrees
Crackers
Spreads
Seasonings
Snacks
Fruit
Candy
Beverages
Other

13. Have you ever used the Hot Sauce/Tabasco Sauce included in the MRE? ☐ YES ☐ NO
IF YES, how often?

- ☐ Never
 ☐ Occasionally
 ☐ Sometimes
 ☐ Often
 ☐ Always

14. Typically, how often do you use/consume the following items that are included in the MRE.

Never 0	Sometimes 1	Often 2	Always 3	
☐	☐	☐	☐	Salt
☐	☐	☐	☐	Sugar
☐	☐	☐	☐	Creamer
☐	☐	☐	☐	Gum
☐	☐	☐	☐	Hot Sauce
☐	☐	☐	☐	Coffee
☐	☐	☐	☐	Beverage Powder
☐	☐	☐	☐	Cracker
☐	☐	☐	☐	Cheese Spread
☐	☐	☐	☐	Jelly
☐	☐	☐	☐	Peanut Butter

Please answer the following questions on the Tray Ration/Heat & Serve you typically eat during field exercises.

15. Please rate the variety of the food items in the Tray Ration/Heat & Serve.

Extremely Too Little Variety 1	Moderately Too Little Variety 2	Slightly Too Little Variety 3	Just Right 4	Slightly Too Much Variety 5	Moderately Too Much Variety 6	Extremely Too Much Variety 7
---	--	--	--------------------	--------------------------------------	--	---------------------------------------

	1	2	3	4	5	6	7	IF TOO LITTLE (ratings of 1, 2, or 3) please explain how to increase variety
Breakfast Entree	☐	☐	☐	☐	☐	☐	☐	_____
Dinner Entree	☐	☐	☐	☐	☐	☐	☐	_____
Vegetables	☐	☐	☐	☐	☐	☐	☐	_____
Starches	☐	☐	☐	☐	☐	☐	☐	_____
Cakes	☐	☐	☐	☐	☐	☐	☐	_____
Desserts	☐	☐	☐	☐	☐	☐	☐	_____
Fruits	☐	☐	☐	☐	☐	☐	☐	_____
Beverages	☐	☐	☐	☐	☐	☐	☐	_____
Candy	☐	☐	☐	☐	☐	☐	☐	_____
Overall T-Ration	☐	☐	☐	☐	☐	☐	☐	_____

16. How many different menus would you like to see in the Tray Ration/Heat & Serve? Please choose one for each meal.

Breakfast		Dinner
☐	5 or less	☐
☐	6 - 10	☐
☐	11 - 15	☐
☐	16 - 20	☐
☐	21 - 25	☐
☐	26 or more	☐

17. Are there any food items you would like dropped from the Tray Ration/Heat & Serve ration? ☐ YES ☐ NO

IF YES, what food items would you like dropped from the Tray Ration/Heat & Serve ration? Please list below.

18. Please list food items you would like to see added to the Tray Ration/Heat & Serve ration in the following categories. Please be realistic.

Breakfast Entrees
Dinner Entrees
Vegetables
Fruits
Spreads
Seasonings
Snacks
Candy
Beverages
Other

19. How often do you use/consume the following items that are included in the Heat & Serv ratione.

Never 0 Sometimes 1 Often 2 Always 3

☐	☐	☐	☐	Salt
☐	☐	☐	☐	Sugar
☐	☐	☐	☐	Creamer
☐	☐	☐	☐	Peanut Butter
☐	☐	☐	☐	Jelly
☐	☐	☐	☐	Hot Sauce
☐	☐	☐	☐	Coffee
☐	☐	☐	☐	Fruit Drink

OVERALL

20. During a typical field exercise, what types of rations do you usually eat for the meals indicated below?

A		T	
RATION	MRE	RATION	Breakfast
☐	☐	☐	Lunch
☐	☐	☐	Dinner
☐	☐	☐	

21. Typically, during active conflict or a goodwill mission, what type of rations do you eat for the meals indicated below?

A		T	
RATION	MRE	RATION	Breakfast
☐	☐	☐	Lunch
☐	☐	☐	Dinner
☐	☐	☐	

22. How do you typically heat your MRE entree? Choose all that apply.

☐ Do Not Heat

☐ Flameless Ration Heater

☐ Sterno

☐ Squad Stoves

☐ Other _____

☐ Heat Tabs

☐ Optimus Stove

☐ Field Kitchen

23. Please rate how much you Dislike/Like the overall MRE.

DISLIKE DISLIKE DISLIKE DISLIKE NIETHER LIKE LIKE
EXTREMELY VERY MUCH MODERATLEY SLIGHTLY LIKE NOR SLIGHTLY MODERATELY VERY MUCH LIKE
EXTREMELY
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

24. Please rate how much you Dislike/Like the overall Tray Ration/Heat & Serve ration.

DISLIKE DISLIKE DISLIKE DISLIKE NIETHER LIKE LIKE LIKE
EXTREMELY VERY MUCH MODERATLEY SLIGHTLY LIKE NOR SLIGHTLY MODERATELY VERY MUCH LIKE
EXTREMELY
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Nutrition Information Section

25. When chosing food to eat, do you typically:
(Choose only one)

☐ Eat what you like

☐ Eat what is good for you

☐ Eat what is available

☐ Other: _____

26. Do you consciously think about the food choices you make when you are in the field eating the following rations?

YES	NO
☐	☐
MRE	
☐	☐
Tray Ration/Heat & Serve	

27. Do you consciously think about food choices when you are NOT in the field? ☐ YES ☐ NO

28. How often do you read the nutritional labels on commercial food items.

Never

☐

Occasionally

☐

Sometimes

☐

Often

☐

Always

☐

29. How confident are you in your knowledge of nutrition?

Not At All

☐

Slightly

☐

Moderately

☐

Very

☐

Extremely

☐

30. Where do you get your nutritional information? Choose all that apply

☐ Magazines

☐ Newspapers

☐ Television

☐ Family/Friends

☐ Health Profession

☐ Books/School

☐ SGT/Military Leader

☐ Nutrient Labels

☐ Other _____

31. In terms of nutritional content, please rate the IMPORTANCE of the following nutrients when choosing which foods to eat

Not At All 0 Slightly Important 1 Moderately Important 2 Very Important 3 Extremely Important 4

0	1	2	3	4	
☐	☐	☐	☐	☐	Calories
☐	☐	☐	☐	☐	Protein
☐	☐	☐	☐	☐	Fat
☐	☐	☐	☐	☐	Carbohydrate
☐	☐	☐	☐	☐	Cholesterol
☐	☐	☐	☐	☐	Sodium
☐	☐	☐	☐	☐	Iron
☐	☐	☐	☐	☐	Fiber
☐	☐	☐	☐	☐	Calcium
☐	☐	☐	☐	☐	Vitamin C
☐	☐	☐	☐	☐	Vitamin A
☐	☐	☐	☐	☐	B Vitamins

Using the same scale as above, rate the IMPORTANCE of each of the following attributes when choosing which foods to eat.

0	1	2	3	4	
☐	☐	☐	☐	☐	Taste
☐	☐	☐	☐	☐	Texture
☐	☐	☐	☐	☐	Price
☐	☐	☐	☐	☐	Brand
☐	☐	☐	☐	☐	Nutritional content
☐	☐	☐	☐	☐	Availability
☐	☐	☐	☐	☐	Habit
☐	☐	☐	☐	☐	Time of Day
☐	☐	☐	☐	☐	Family
☐	☐	☐	☐	☐	Odor
☐	☐	☐	☐	☐	Appearance
☐	☐	☐	☐	☐	How Filling

32. Using the scale below, rate the amount of the listed nutrients you believe are in one MRE ration and one Tray Ration meal/Heat & Serve meal.

MRE						TRAY RATION				
1	2	3	4	5		1	2	3	4	5
☐	☐	☐	☐	☐	Calories	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	Protein	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	Fat	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	Carbohydrate	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	Cholesterol	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	Sodium	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	Iron	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	Fiber	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	Calcium	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	Vitamin C	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	Vitamin A	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	B Vitamins	☐	☐	☐	☐	☐

33. Which of the statements best defines fortified foods? Choose only one.

- ☐ a food which contains a natural supply of vitamins and minerals
- ☐ a food to which vitamins and minerals have been added
- ☐ a food which contains enough vitamins and minerals to meet the daily requirements
- ☐ a food which nonessential food components have been removed

34. How many calories do you think are in:

One single MRE ration (complete meal) _____ calories

One single Tray Ration meal _____ calories

35. How many calories PER DAY do you believe are necessary in the following situations?

_____ in garrison

_____ in the field

_____ in the desert

_____ in extreme cold weather

_____ combat

_____ while on vacation

36. What is the maximum total daily calories that should be provided by fats.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

37. What is the maximum total daily calories that should be provided by SATURATED fats.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

38. What is the maximum amount of cholesterol that should be consumed daily?

0mg 150mg 300 mg 450 mg 600 mg 750 mg 900 mg

☐ ☐ ☐ ☐ ☐ ☐ ☐

39. Identify the best source of Iron.

☐ 2% Milk ☐ Hamburger

☐ Apple ☐ Lettuce

40. Fats, carbohydrates, and protein together account for 100% of the calories in the MRE. What percentage do you think each nutrient contributes to the total number of calories in the MRE.

%	0	10	20	30	40	50	60	70	80	90	100
Fat	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Carbohydrates	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Protein	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

The sum of the three numbers should equal 100%

41. Would you like nutrient information available for the:

YES NO

☐
☐
☐
☐

MRE

Tray Ration/Heat & Serve

☐

42. Please fill in the appropriate bubble for each statement below. (N/A = Not Applicable)

N/A	YES	NO	
☐	☐	☐	I avoid certain foods due to religious, health, or medical reasons.
☐	☐	☐	I restrict, control or limit certain foods that my family eats.
☐	☐	☐	I eat certain foods due to religious, health, or medical reasons.
☐	☐	☐	I follow the same basic diet that I grew up with.
☐	☐	☐	I have an adequate understanding of nutrition.
☐	☐	☐	I typically eat snacks between meals.
☐	☐	☐	I am a vegetarian.
☐	☐	☐	I prepare the meals for my household/self.
☐	☐	☐	I purchase the food for my household/self.
☐	☐	☐	My food shopping habits have changed within the last year.
☐	☐	☐	My eating habits have changed within the last year.
☐	☐	☐	I live alone.
☐	☐	☐	I have eaten more than 25 MRE's.
☐	☐	☐	Foods that I eat affect my overall daily performance.

43. What type of beverages do you typically drink on a daily basis? (Other than beer!)

44. Are you trying to gain or lose weight? ☐ Gain ☐ Lose ☐ Stay The Same

45. During a typical work week where do you usually eat the following meals?

	In the Office	At Home	In Dining Facility	Resturant	Fast Food Resturant	Other
Breakfast	☐	☐	☐	☐	☐	☐
Lunch	☐	☐	☐	☐	☐	☐
Dinner	☐	☐	☐	☐	☐	☐

46. Please answer the following questions regarding the different food types below. Please indicate if you have ever eaten any of the following by filling in YES or NO.

YES	NO		YES	NO	
☐	☐	Freeze Dried Foods	☐	☐	Canned Foods
☐	☐	Dehydrated Foods	☐	☐	Instant Foods
☐	☐	Frozen Foods			

47. How much you liked the item(s) below. If you have not tried an item, tell me how much you think you would like the item. Each item below will have an acceptability rating.

DISLIKE EXTREMELY	DISLIKE VERY MUCH	DISLIKE MODERATELY	DISLIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	LIKE SLIGHTLY	LIKE MODERATELY	LIKE VERY MUCH	LIKE EXTREMELY
1	2	3	4	5	6	7	8	9

☐	☐	☐	☐	☐	☐	☐	☐	☐	Freeze Dried Foods
☐	☐	☐	☐	☐	☐	☐	☐	☐	Dehydrated Foods
☐	☐	☐	☐	☐	☐	☐	☐	☐	Canned Foods
☐	☐	☐	☐	☐	☐	☐	☐	☐	Instant Foods
☐	☐	☐	☐	☐	☐	☐	☐	☐	Frozen Foods

48. The nutrition label below describes the nutrition information for a loaf of bread. If you ate the entire loaf, would you exceed the maximum recommended daily intake of saturated fat based on a 2,500 calorie/day diet?

Nutrition Facts			
Serving Size 28g			
Servings per container 20			
Amount per serving 1 Slice			
Calories 80			
Calories from fat 9			
		% Daily Value*	
Total fat	1g	2%	
Saturated fat	1g	3%	
Cholesterol	0mg	0%	
Sodium	200mg	8%	
Total carbohydrate	13g	9%	
Dietary fiber	1g	6%	
Sugars	1g		
Protein	3g		
Vitamin A 0%		Vitamin C 0%	
Calcium 15%		Iron 10%	
* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower based on your calorie needs:			
	Calories:	2,000	2,500
Total fat	Less than	65g	80g
Sat fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2400mg	2400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g
Calories per gram:			
Fat	9	Carbohydrate	4
Protein	4		

☐ YES
☐ NO

DAY GROUP	WEIGHT	BOOTS	SOCKS	BDU		UNDERWEAR	BELT	LONGJOHN TOP/BOTTOM	FIELD JACKET AND/OR LINER	SLEEP SHIRT	OTHER
				TOP	BOT- TOM						
		CORCORAN JUNGLE COMBAT	____ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	____ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	____ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	____ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	____ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	____ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	____ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	____ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	____ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	____ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	

MRE INTAKE RECORD

TIME EATEN

ID: _____
DATE/DAY: _____1. Use the scale below to rate your hunger BEFORE this meal. (circle one)NOT AT ALL
HUNGRYSOMEWHAT
HUNGRYMODERATELY
HUNGRYVERY
HUNGRYEXTREMELY
HUNGRY

2. Please fill in the following information for the foods you ate at this MRE meal.

FOOD TYPE	CODE	FOOD ITEM	AMOUNT EATEN	DISLIKE EXTREMELY	DISLIKE VERY MUCH	DISLIKE MODERATELY	DISLIKE SLIGHTLY	NEITHER LIKE/DISLIKE	LIKE SLIGHTLY	LIKE MODERATELY	LIKE VERY MUCH	LIKE EXTREMELY	DID YOU HEAT THE ITEM ?	DID NOT LIKE NOT HUNGRY TRADED / GAVE AWAY OTHER	
ENTREES	01	Pork w/Rice	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	02	Corned Beef Hash	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	03	Chicken Stew	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	04	Omelet w/Ham	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	05	Spaghetti w/Meat Sauce	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	06	Smoky Franks	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	07	Beef Stew	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	08	Ham Slices	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	09	Pork Chow Mein	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	10	Tuna w/Noodles	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	11	Chicken w/Rice	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	12	Esc. Potatoes w/Ham	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
STARCHES	20	Chow Mein Noodles	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	21	Potato Au Gratin	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	22	MRE Cracker	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
SPREADS	30	Cheese Spread	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	31	Jelly	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	32	Peanut Butter	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
SNACKS	40	Oatmeal Cookie Bar	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	41	Potato Stick	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	42	Chocolate Covered Cookie	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	43	Pound Cake	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	44	Chocolate Covered Brownie	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
DRINKS	50	Beverage w/Sugar	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	51	Sugar Free Beverage	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	52	Coffee	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	53	Cocoa	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
FRUIT	60	Freeze Dried Fruit	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	61	Wet Pack Fruit	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	62	Applesauce	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
CANDY	70	Charms	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	71	M&M's	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	72	Chocolate Bar	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	73	Vanilla Caramels	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	74	Tootsie Rolls	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
ACCESSORY PACKET ITEMS	80	Salt	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	81	Cream	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	82	Sugar	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	83	Gum	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	84	Hot Sauce	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D

** OVERALL MEAL

1 2 3 4 5 6 7 8 9

(OVER)

3. Rate the amount of food you received in this MRE meal. (circle one)

MUCH TOO LITTLE MODERATELY TOO LITTLE SOMEWHAT TOO LITTLE JUST RIGHT SOMEWHAT TOO MUCH MODERATELY TOO MUCH MUCH TOO MUCH

4. Rate the temperature of your MRE entree after heating. (circle one)

MUCH TOO COLD MODERATELY TOO COLD SOMEWHAT TOO COLD JUST RIGHT SOMEWHAT TOO HOT MODERATELY TOO HOT MUCH TOO HOT

5. Rate your hunger AFTER this meal. (circle one)

NOT AT ALL HUNGRY SOMEWHAT HUNGRY MODERATELY HUNGRY VERY HUNGRY EXTREMELY HUNGRY

6. Please estimate the amount of water you drank or added to your MRE food or beverages during each time period listed below. If you drank more than 2 quarts of water during any one period, write in the total amount on the line provided.

<u>Time Periods</u>	<u>Amount of water (QUARTS)</u>									
WITH YOUR MRE	0	1/4	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	MORE THAN 2____
BETWEEN BREAKFAST AND LUNCH	0	1/4	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	MORE THAN 2____
BETWEEN LUNCH AND DINNER	0	1/4	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	MORE THAN 2____
BETWEEN DINNER AND BREAKFAST	0	1/4	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	MORE THAN 2____

7. Please list any non-MRE and non-Heat & Serve food items you ate today.

FOOD	AMOUNT	TIME
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

MRE INTAKE RECORD

TIME EATEN

ID: _____
DATE/DAY: _____1. Use the scale below to rate your hunger BEFORE this meal. (circle one)NOT AT ALL
HUNGRYSOMEWHAT
HUNGRYMODERATELY
HUNGRYVERY
HUNGRYEXTREMELY
HUNGRY

2. Please fill in the following information for the foods you ate at this MRE meal.

FOOD TYPE	CODE	FOOD ITEM	AMOUNT EATEN	DISLIKE EXTREMELY	DISLIKE VERY MUCH	DISLIKE MODERATELY	DISLIKE SLIGHTLY	NEITHER LIKE/DISLIKE	LIKE SLIGHTLY	LIKE MODERATELY	LIKE VERY MUCH	LIKE EXTREMELY	DID YOU HEAT THE ITEM ?	DID NOT LIKE NOT HUNGRY TRADED/GAVE AWAY OTHER	
ENTREES	01	Teriyaki Beef	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	02	Meatloaf w/Gravy	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	03	Beef Enchiladas	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	04	Spicy Oriental Chicken	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	05	Salsa Chicken	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	06	Pasta Primavera Alfredo	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	07	Black Beans & Rice Burrito	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	08	Sausage Patty	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
STARCHES	10	Chow Mein Noodles	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	11	Buttered Noodles	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	12	Mexican Rice	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	13	White Rice	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
CRACKERS	16	Vegetable MRE Cracker	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	17	MRE Cracker	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
SPREADS	20	Cheddar Cheese Spread	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	21	Jalepeno Cheese Spread	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	22	Strawberry Jam	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	23	Peanut Butter	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
SNACKS	30	Corn Chips	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	31	Beef Jerky	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	32	Snack Mix	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	33	Roasted Peanuts	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
PASTRIES	40	Lemon Pound Cake	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	41	Shortbread Cookies	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	42	Fudge Brownie	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	43	Apple Cinnamon Toaster Pastry	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	44	Chewy Chocolate Bar	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
FRUIT BARS	50	Apple Fruit Filled Bar	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	51	Blueberry Fruit Filled Bar	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	52	Strawberry Fruit Filled Bar	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
GRANOLA BARS	55	Peanut Butter Granola Bar	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	56	Chocolate Chip Granola Bar	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	57	Honey Nut Granola Bar	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
FRUITS	60	Cinnamon Apples	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	61	Fruit Mix	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	62	Applesauce	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
DRINKS	70	Lemon Tea	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	71	Lemon-Lime Beverage	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	72	Grape Beverage	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	73	Apple Cider	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	74	Coffee	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	75	English Tea Time	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	76	Earl Grey Tea	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D
	77	Cocoa	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A B C D

(OVER)

FOOD TYPE	CODE	FOOD ITEM	AMOUNT EATEN	DISLIKE EXTREMELY	DISLIKE VERY MUCH	DISLIKE MODERATELY	DISLIKE SLIGHTLY	NEITHER LIKE/DISLIKE	LIKE SLIGHTLY	LIKE MODERATELY	LIKE VERY MUCH	LIKE EXTREMELY	DID YOU HEAT THE ITEM ?	DID NOT LIKE	NOT HUNGRY	TRADED / GAVE AWAY	OTHER	
SAUCES	80	BBQ Sauce	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	81	Hot Sauce	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
ACCESSORY	82	Salt	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
PACKET	83	Cream	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
ITEMS	84	Sugar	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	85	Gum	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
** OVERALL MEAL				1 2 3 4 5 6 7 8 9														

3. Rate the amount of food you received in this MRE meal. (circle one)

MUCH TOO LITTLE	MODERATELY TOO LITTLE	SOMEWHAT TOO LITTLE	JUST RIGHT	SOMEWHAT TOO MUCH	MODERATELY TOO MUCH	MUCH TOO MUCH
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4. Rate the temperature of your MRE entree after heating. (circle one)

MUCH TOO COLD	MODERATELY TOO COLD	SOMEWHAT TOO COLD	JUST RIGHT	SOMEWHAT TOO HOT	MODERATELY TOO HOT	MUCH TOO HOT
------------------	------------------------	----------------------	---------------	---------------------	-----------------------	-----------------

5. Rate your hunger AFTER this meal. (circle one)

NOT AT ALL HUNGRY	SOMEWHAT HUNGRY	MODERATELY HUNGRY	VERY HUNGRY	EXTREMELY HUNGRY
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6. Please estimate the amount of water you drank or added to your MRE food or beverages during each time period listed below. If you drank more than 2 quarts of water during any one period, write in the total amount on the line provided.

Time Periods	Amount of water (QUARTS)									
WITH YOUR MRE	0	1/4	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	MORE THAN 2 ____
BETWEEN BREAKFAST AND LUNCH	0	1/4	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	MORE THAN 2 ____
BETWEEN LUNCH AND DINNER	0	1/4	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	MORE THAN 2 ____
BETWEEN DINNER AND BREAKFAST	0	1/4	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	MORE THAN 2 ____

7. Please list any non-MRE and non-Heat & Serve food items you ate today.

FOOD	AMOUNT	TIME
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

ID _____
 Name _____
 Day/Date _____

BREAKFAST ACCEPTABILITY

Please use the following scale to
 rate the food you ate at this meal.

DID NOT EAT 0	DISLIKE EXTREMELY 1	DISLIKE VERY MUCH 2	DISLIKE MODERATELY 3	DISLIKE SLIGHTLY 4	NEITHER LIKE NOR DISLIKE 5	LIKE SLIGHTLY 6	LIKE MODERATELY 7	LIKE VERY MUCH 8	LIKE EXTREMELY 9
------------------	------------------------	------------------------	-------------------------	-----------------------	-------------------------------	--------------------	----------------------	---------------------	---------------------

		0	1	2	3	4	5	6	7	8	9
Breakfast Items	Waffles	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Maple Syrup	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Pork Sausage Links	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Fruit/Cake	Lemon Pound Cake	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Peaches	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Oatmeal	Kind: _____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Fresh Fruit	Apple	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Orange	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Pear	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Banana	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Cereal	Kind: _____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Bread	Wheat	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	White	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Rye	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Beverages	Orange Juice	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Grape Juice	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Coffee	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Cocoa	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	White Milk	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Chocolate Milk	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Condiments	Peanut Butter	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Jelly	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Hot Sauce	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Other	_____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

DO NOT WRITE BELOW LINE

Group	E	C	T	DAY	1	2	3	4	5	6	7	8	9	10	ID	0	1	2	3	4	5	6	7	8	9	CEREAL	0	1	2	3	4	5	6	7	8	9	OATMEAL	0	1	2	3	4	5	6	7	8	9

Please rate the amount of food you received in this meal.

Much Too Little	Moderately Too Little	Somewhat Too Little	Just Right	Somewhat Too Much	Moderately Too Much	Much Too Much
☐	☐	☐	☐	☐	☐	☐

Using the scale below, rate the overall temperature of the following foods.

Extremely Cold	Moderately Cold	Somewhat Cold	Neither Hot nor Cold	Somewhat Hot	Moderately Hot	Extremely Hot
1	2	3	4	5	6	7

	1	2	3	4	5	6	7
Entree	☐	☐	☐	☐	☐	☐	☐
Meat Side Dish	☐	☐	☐	☐	☐	☐	☐
Potatoes	☐	☐	☐	☐	☐	☐	☐
Oatmeal	☐	☐	☐	☐	☐	☐	☐
Hot Drink	☐	☐	☐	☐	☐	☐	☐

Was your food too cold, too hot, or just right for you?

Much Too Cold	Moderately Too Cold	Somewhat Too Cold	Just Right	Somewhat Too Hot	Moderately Too Hot	Much Too Hot
1	2	3	4	5	6	7

	1	2	3	4	5	6	7
Entree	☐	☐	☐	☐	☐	☐	☐
Meat Side Dish	☐	☐	☐	☐	☐	☐	☐
Potatoes	☐	☐	☐	☐	☐	☐	☐
Oatmeal	☐	☐	☐	☐	☐	☐	☐
Hot Drink	☐	☐	☐	☐	☐	☐	☐

Name: _____

ID: _____

Date: _____

Dinner Acceptability

Please use the following scale to indicate your like or dislike of each of the T Ration items you ate at this meal.

DID NOT EAT 0	DISLIKE EXTREMELY 1	DISLIKE VERY MUCH 2	DISLIKE MODERATELY 3	DISLIKE SLIGHTLY 4	NEITHER LIKE NOR DISLIKE 5	LIKE SLIGHTLY 6	LIKE MODERATELY 7	LIKE VERY MUCH 8	LIKE EXTREMELY 9
------------------------	---------------------------	------------------------------	----------------------------	--------------------------	-------------------------------------	-----------------------	-------------------------	---------------------------	------------------------

		0	1	2	3	4	5	6	7	8	9
ENTREE	Cajun Style Meatloaf	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Spanish Rice	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Mixed Vegetables	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Corn Bread	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
DESSERT	Other: _____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Other: _____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
SALAD	Salad	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Salad Dressing _____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
FRESH FRUIT	Apple	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Orange	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Pear	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Banana	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
BREAD	White	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Wheat	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
BEVERAGES	Grape Beverage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Coffee	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Cocoa	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	White Milk	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Chocolate Milk	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
CONDIMENTS	Peanut Butter	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Jelly	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Hot Sauce	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Other: _____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
OTHER	_____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	_____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Group	E C T	Day	ID	Salad Dressing
	☐ ☐ ☐	1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9
	☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9
	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Please rate the amount of food you received in this meal.

Much Too Little	Moderately Too Little	Somewhat Too Little	Just Right	Somewhat Too Much	Moderately Too Much	Much Too Much
☐	☐	☐	☐	☐	☐	☐

Using the scale below, rate the overall temperature of the following foods.

Extremely Cold 1	Moderately Cold 2	Somewhat Cold 3	Neither Hot nor Cold 4	Somewhat Hot 5	Moderately Hot 6	Extremely Hot 7
------------------------	-------------------------	-----------------------	------------------------------	----------------------	------------------------	-----------------------

	1	2	3	4	5	6	7
Entree	☐	☐	☐	☐	☐	☐	☐
Vegetable	☐	☐	☐	☐	☐	☐	☐
Potato/Rice	☐	☐	☐	☐	☐	☐	☐
Hot Drink	☐	☐	☐	☐	☐	☐	☐

Was your food too cold, too hot, or just right for you?

Much Too Cold 1	Moderately Too Cold 2	Somewhat Too Cold 3	Just Right 4	Somewhat Too Hot 5	Moderately Too Hot 6	Much Too Hot 7
-----------------------	-----------------------------	---------------------------	--------------------	--------------------------	----------------------------	----------------------

	1	2	3	4	5	6	7
Entree	☐	☐	☐	☐	☐	☐	☐
Vegetable	☐	☐	☐	☐	☐	☐	☐
Potato/Rice	☐	☐	☐	☐	☐	☐	☐
Hot Drink	☐	☐	☐	☐	☐	☐	☐

What was your activity level today?

Very Light	Light	Moderate	Heavy	Very Heavy
☐	☐	☐	☐	☐

DAY																																					
MEAL																																					
COMPANY																																					
SCRAMBLED EGG											A	O	P	B							A	O	P	B							WHITE WHEAT						
RANCH SAUCE											A	O	P	B							A	O	P	B							WHITE WHEAT						
POTATOES											A	O	P	B							A	O	P	B							WHITE WHEAT						
PEACHES											A	O	P	B							A	O	P	B							WHITE WHEAT						
FRESH FRUIT											A	O	P	B							A	O	P	B							WHITE WHEAT						
BREAD											A	O	P	B							A	O	P	B							WHITE WHEAT						
BEVERAGE											A	O	P	B							A	O	P	B							WHITE WHEAT						
WATER											A	O	P	B							A	O	P	B							WHITE WHEAT						
CEREAL											A	O	P	B							A	O	P	B							WHITE WHEAT						
OATMEAL											A	O	P	B							A	O	P	B							WHITE WHEAT						
CREAM O WHEAT											A	O	P	B							A	O	P	B							WHITE WHEAT						

ID: _____
 BATTERY: _____

Test Final Questionnaire

Thank You for participating in the ration evaluation.
 This is the final questionnaire and chance for you
 to give your opinions of the food items you ate over
 the last 10 days. All answers will be kept confidential.
 Again, Thank You.

Heat & Serve Ration Section

- Of the Heat & Serve food items you ate this week which food items would you LIKE included in the Heat & Serve menus?
- Of the Heat & Serve food items you ate this week which food items would you NOT like included in the Heat & Serve menus?

- Rate the variety of the food groups listed below for the Heat & Serve.

Extremely Too Little Variety 1	Moderately Too Little Variety 2	Slightly Too Little Variety 3	Just Right 4	Slightly Too Much Variety 5	Moderately Too Much Variety 6	Extremely Too Much Variety 7
---	--	--	--------------------	--------------------------------------	--	---------------------------------------

1	2	3	4	5	6	7	
☐	☐	☐	☐	☐	☐	☐	Breakfast Entrees
☐	☐	☐	☐	☐	☐	☐	Dinner Entrees
☐	☐	☐	☐	☐	☐	☐	Vegetables
☐	☐	☐	☐	☐	☐	☐	Starches
☐	☐	☐	☐	☐	☐	☐	Cakes
☐	☐	☐	☐	☐	☐	☐	Desserts
☐	☐	☐	☐	☐	☐	☐	Fruits
☐	☐	☐	☐	☐	☐	☐	Beverages
☐	☐	☐	☐	☐	☐	☐	Candy
☐	☐	☐	☐	☐	☐	☐	Overall Heat & Serve

DO NOT WRITE BELOW THIS LINE

0 1 2 3 4 5 6 7 8 9

E T C

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4. Please rate the portion sizes of the food items below.

Much Too Small	Moderately Too Small	Somewhat Too Small	Just Right	Somewhat Too Large	Moderately Too Large	Much Too Large
1	2	3	4	5	6	7

1	2	3	4	5	6	7	
☐	☐	☐	☐	☐	☐	☐	Eggs
☐	☐	☐	☐	☐	☐	☐	Blueberry Waffles
☐	☐	☐	☐	☐	☐	☐	Corned Beef Hash
☐	☐	☐	☐	☐	☐	☐	Roast Beef Hash
☐	☐	☐	☐	☐	☐	☐	Ground Sausage w/Gravy
☐	☐	☐	☐	☐	☐	☐	Beef Franks
☐	☐	☐	☐	☐	☐	☐	Beef Stew
☐	☐	☐	☐	☐	☐	☐	Chicken Breast
☐	☐	☐	☐	☐	☐	☐	Boneless BBQ Pork Ribs
☐	☐	☐	☐	☐	☐	☐	Chicken Teriyaki
☐	☐	☐	☐	☐	☐	☐	Turkey Slices w/Gravy
☐	☐	☐	☐	☐	☐	☐	Spanish Rice
☐	☐	☐	☐	☐	☐	☐	Three Bean Salad
☐	☐	☐	☐	☐	☐	☐	Cakes
☐	☐	☐	☐	☐	☐	☐	Tea Loaf w/Walnuts
☐	☐	☐	☐	☐	☐	☐	Biscuits
☐	☐	☐	☐	☐	☐	☐	Butterscotch Pudding
☐	☐	☐	☐	☐	☐	☐	Tropical Fruit Salad
☐	☐	☐	☐	☐	☐	☐	Cream Of Wheat
☐	☐	☐	☐	☐	☐	☐	Blueberry Topping
☐	☐	☐	☐	☐	☐	☐	Overall Heat & Serve

5. How do you think the Heat & Serve ration can be improved?

MRE Section

6. Of the MRE food items you ate this week which food items would you LIKE included in the MRE menus?

Please list the items below.

7. Of the MRE food items you ate this week which food items would you NOT like included in the MRE menus? Please list items below.

8. Was there enough food in one MRE ration to satisfy your hunger?

☐ YES

☐ NO

IF NO, what would you change?

9. Please rate the portion sizes of the food items below.

Much
Too Small
1

Moderately
Too Small
2

Somewhat
Too Small
3

Just
Right
4

Somewhat
Too Large
5

Moderately
Too Large
6

Much
Too Large
7

1	2	3	4	5	6	7	
☐	☐	☐	☐	☐	☐	☐	Teriyaki Beef
☐	☐	☐	☐	☐	☐	☐	Meatloaf w/Gravy
☐	☐	☐	☐	☐	☐	☐	Beef Enchiladas
☐	☐	☐	☐	☐	☐	☐	Spicy Oriental Chicken
☐	☐	☐	☐	☐	☐	☐	Salsa Chicken
☐	☐	☐	☐	☐	☐	☐	Pasta Primavera Alfredo
☐	☐	☐	☐	☐	☐	☐	Black Beans & Rice Burrito
☐	☐	☐	☐	☐	☐	☐	Sausage Patty
☐	☐	☐	☐	☐	☐	☐	Chow Mein Noodles
☐	☐	☐	☐	☐	☐	☐	Buttered Noodles
☐	☐	☐	☐	☐	☐	☐	Mexican Rice
☐	☐	☐	☐	☐	☐	☐	White Rice
☐	☐	☐	☐	☐	☐	☐	Apple Cinnamon Toaster Pastry
☐	☐	☐	☐	☐	☐	☐	Shortbread Cookies
☐	☐	☐	☐	☐	☐	☐	Chewy Chocolate Bar
☐	☐	☐	☐	☐	☐	☐	Fruit Filled Bars
☐	☐	☐	☐	☐	☐	☐	Granola Bars
☐	☐	☐	☐	☐	☐	☐	Fruits
☐	☐	☐	☐	☐	☐	☐	Cheddar Cheese
☐	☐	☐	☐	☐	☐	☐	Jalepeno Cheese
☐	☐	☐	☐	☐	☐	☐	Strawberry Jam
☐	☐	☐	☐	☐	☐	☐	BBQ Sauce
☐	☐	☐	☐	☐	☐	☐	Hot Sauce
☐	☐	☐	☐	☐	☐	☐	Beverages

10. Do you have any comments on the MRE packaging?



11. Rate the variety of the food items in the MRE ration you ate during this evaluation.

Extremely Too Little Variety 1	Moderately Too Little Variety 2	Slightly Too Little Variety 3	Just Right 4	Slightly Too Much Variety 5	Moderately Too Much Variety 6	Extremely Too Much Variety 7
---	--	--	--------------------	--------------------------------------	--	---------------------------------------

1	2	3	4	5	6	7	
☐	☐	☐	☐	☐	☐	☐	Entrees
☐	☐	☐	☐	☐	☐	☐	Rice
☐	☐	☐	☐	☐	☐	☐	Crackers
☐	☐	☐	☐	☐	☐	☐	Spreads
☐	☐	☐	☐	☐	☐	☐	Snacks
☐	☐	☐	☐	☐	☐	☐	Pastries
☐	☐	☐	☐	☐	☐	☐	Fruit Bars
☐	☐	☐	☐	☐	☐	☐	Granola Bars
☐	☐	☐	☐	☐	☐	☐	Desserts
☐	☐	☐	☐	☐	☐	☐	Fruits
☐	☐	☐	☐	☐	☐	☐	Cakes
☐	☐	☐	☐	☐	☐	☐	Candy
☐	☐	☐	☐	☐	☐	☐	Beverages
☐	☐	☐	☐	☐	☐	☐	Overall MRE

12. Were any of the food items damaged? ☐ YES
IF YES, which items and where did you store that ration?

☐ NO



13. Of the 12 menus available in the MRE, how many MRE menus would you like each of the following items in?

None	1/4	1/2	3/4	All	
☐	☐	☐	☐	☐	Hot Tea (bag)
☐	☐	☐	☐	☐	Iced Tea (powder)
☐	☐	☐	☐	☐	Coffee
☐	☐	☐	☐	☐	Beverage Powder (Sugar)
☐	☐	☐	☐	☐	Beverage Powder (SugarFree)
☐	☐	☐	☐	☐	Apple Cider
☐	☐	☐	☐	☐	Other: _____

Hot Sauce Section

14. Rate the following characteristics of the pouch hot sauce container.

	Very Poor 1	Moderately Poor 2	Slightly Poor 3	Neither Poor Nor Good 4	Slightly Good 5	Moderately Good 6	Very Good 7
Ease of opening	☐	☐	☐	☐	☐	☐	☐
Ease of pouring	☐	☐	☐	☐	☐	☐	☐
Durability of package	☐	☐	☐	☐	☐	☐	☐
Taste of the hot sauce	☐	☐	☐	☐	☐	☐	☐

Please explain any ratings below "Neither Poor Nor Good" (ratings of 1, 2, or 3)

15. Rate the durability of the hot sauce containers for field use.

	Not at All Durable 0	Somewhat Durable 1	Moderately Durable 2	Very Durable 3	Extremely Durable 4
Glass	☐	☐	☐	☐	☐
Pouch	☐	☐	☐	☐	☐

16. Rate the amount of trash generated by the hot sauce containers.

Extremely Inappropriate 1	Moderately Inappropriate 2	Somewhat Inappropriate 3	Neither Inappropriate Nor Appropriate 4	Somewhat Appropriate 5	Moderately Appropriate 6	Extremely Appropriate 7
Glass	☐	☐	☐	☐	☐	☐
Pouch	☐	☐	☐	☐	☐	☐

17. Were there any problems while opening the pouch hot sauce container? ☐ YES
IF YES, please explain. ☐ NO

18. Was the pouch hot sauce container adequate for field use? ☐ YES ☐ NO
IF NO, please explain.

19. How did you open the pouch hot sauce container? Choose all the apply. ☐ using hands ☐ with knife ☐ using teeth ☐ Other: _____ ☐
20. Did the pouch hot sauce spill/splash from the container while you were opening it? ☐ YES
☐ NO
IF NO, goto Q23
21. How often did the hot sauce spill/splash while opening it?
☐ Once ☐ 2-5 times ☐ 6-9 times ☐ Everytime
22. Was the spilling/splashing a problem? ☐ YES ☐ NO
23. Would you liked a hot sauce container that can be reclosed? ☐ YES ☐ NO
24. Which container do you prefer? ☐ GLASS
☐ POUCH
25. Please rate the strength of your preference for the container you chose?
Very Small Preference ☐ Slight Preference ☐ Moderate Preference ☐ Strong Preference ☐
26. Do you have any further comments on the MRE ration?
27. Do you have any further comments on the Heat & Serve ration?
28. Do you have any further comments on the Hot Sauce container?

ID: _____
 BATTERY: _____

Final Questionnaire

Thank You for participating in the ration evaluation.
 This is the final questionnaire and chance for you
 to give your opinions of the food items you ate over
 the last 10 days. All answers will be kept confidential.
 Again, Thank You.

Heat & Serve Ration Section

1. Of the Heat & Serve food items you ate this week which food items would you LIKE included in the Heat & Serve menus?
2. Of the Heat & Serve food items you ate this week which food items would you NOT like included in the Heat & Serve menus?

3. Rate the variety of the food groups listed below for the Heat & Serve.

Extremely Too Little Variety 1	Moderately Too Little Variety 2	Slightly Too Little Variety 3	Just Right 4	Slightly Too Much Variety 5	Moderately Too Much Variety 6	Extremely Too Much Variety 7
---	--	--	--------------------	--------------------------------------	--	---------------------------------------

1	2	3	4	5	6	7	
☐	☐	☐	☐	☐	☐	☐	Breakfast Entrees
☐	☐	☐	☐	☐	☐	☐	Dinner Entrees
☐	☐	☐	☐	☐	☐	☐	Vegetables
☐	☐	☐	☐	☐	☐	☐	Starches
☐	☐	☐	☐	☐	☐	☐	Cakes
☐	☐	☐	☐	☐	☐	☐	Desserts
☐	☐	☐	☐	☐	☐	☐	Fruits
☐	☐	☐	☐	☐	☐	☐	Beverages
☐	☐	☐	☐	☐	☐	☐	Candy
☐	☐	☐	☐	☐	☐	☐	Overall Heat & Serve

DO NOT WRITE BELOW THIS LINE

0	1	2	3	4	5	6	7	8	9

E	T	C

4. Please rate the portion sizes of the food items below.

Much Too Small	Moderately Too Small	Somewhat Too Small	Just Right	Somewhat Too Large	Moderately Too Large	Much Too Large
1	2	3	4	5	6	7

1	2	3	4	5	6	7	
☐	☐	☐	☐	☐	☐	☐	Eggs
☐	☐	☐	☐	☐	☐	☐	Waffles
☐	☐	☐	☐	☐	☐	☐	Corned Beef Hash
☐	☐	☐	☐	☐	☐	☐	Creamed Ground Beef
☐	☐	☐	☐	☐	☐	☐	Pork Sausage Links
☐	☐	☐	☐	☐	☐	☐	Oatmeal
☐	☐	☐	☐	☐	☐	☐	Chicken Chow Mein
☐	☐	☐	☐	☐	☐	☐	Beef Patties
☐	☐	☐	☐	☐	☐	☐	Spaghetti w/Meatballs
☐	☐	☐	☐	☐	☐	☐	Turkey Slices w/Gravy
☐	☐	☐	☐	☐	☐	☐	Beef Stew
☐	☐	☐	☐	☐	☐	☐	Chicken Breast w/Gravy
☐	☐	☐	☐	☐	☐	☐	Lasagna w/Meat Sauce
☐	☐	☐	☐	☐	☐	☐	Meatballs w/Brown Gravy
☐	☐	☐	☐	☐	☐	☐	Boneless BBQ Pork Ribs
☐	☐	☐	☐	☐	☐	☐	Beef Strips w/Peppers
☐	☐	☐	☐	☐	☐	☐	Cakes
☐	☐	☐	☐	☐	☐	☐	Vegetables
☐	☐	☐	☐	☐	☐	☐	Red Beans & Rice
☐	☐	☐	☐	☐	☐	☐	White Rice
☐	☐	☐	☐	☐	☐	☐	Blueberry Dessert
☐	☐	☐	☐	☐	☐	☐	Fruit Cocktail
☐	☐	☐	☐	☐	☐	☐	Cheese Spread
☐	☐	☐	☐	☐	☐	☐	Overall Heat & Serve

5. How do you think the Heat & Serve ration can be improved?

MRE Section

6. Of the MRE food items you ate this week which food items would you LIKE included in the MRE menus?

Please list the items below.

7. Of the MRE food items you ate this week which food items would you NOT like included in the MRE menus?

8. Was there enough food in one MRE ration to satisfy your hunger?
IF NO, what would you change?

☐ YES

☐ NO

9. Please rate the portion sizes of the food items below.

Much
Too Small
1

Moderately
Too Small
2

Somewhat
Too Small
3

Just
Right
4

Somewhat
Too Large
5

Moderately
Too Large
6

Much
Too Large
7

1	2	3	4	5	6	7	
☐	☐	☐	☐	☐	☐	☐	Pork w/Rice
☐	☐	☐	☐	☐	☐	☐	Corned Beef
☐	☐	☐	☐	☐	☐	☐	Chicken Stew
☐	☐	☐	☐	☐	☐	☐	Omelet w/Ham
☐	☐	☐	☐	☐	☐	☐	Spaghetti w/Meat Sauce
☐	☐	☐	☐	☐	☐	☐	Smoky Franks
☐	☐	☐	☐	☐	☐	☐	Beef Stew
☐	☐	☐	☐	☐	☐	☐	Ham Slices
☐	☐	☐	☐	☐	☐	☐	Pork Chow Mein
☐	☐	☐	☐	☐	☐	☐	Tuna w/Noodles
☐	☐	☐	☐	☐	☐	☐	Chicken w/Rice
☐	☐	☐	☐	☐	☐	☐	Esc. Potatoes w/Ham
☐	☐	☐	☐	☐	☐	☐	Chow Mein Noodles
☐	☐	☐	☐	☐	☐	☐	Oatmeal Cookie Bar
☐	☐	☐	☐	☐	☐	☐	Potato Sticks
☐	☐	☐	☐	☐	☐	☐	Chocolate Covered Cookie
☐	☐	☐	☐	☐	☐	☐	Pound Cake
☐	☐	☐	☐	☐	☐	☐	Chocolate Covered Brownie
☐	☐	☐	☐	☐	☐	☐	Beverages
☐	☐	☐	☐	☐	☐	☐	Coffee

10. Do you have any comments on the MRE packaging?



11. Rate the variety of the food items in the MRE ration you ate during this evaluation.

Extremely
Too Little
Variety
1

Moderately
Too Little
Variety
2

Slightly
Too Little
Variety
3

Just
Right
4

Slightly
Too Much
Variety
5

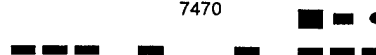
Moderately
Too Much
Variety
6

Extremely
Too Much
Variety
7

1	2	3	4	5	6	7	
☐	☐	☐	☐	☐	☐	☐	Entrees
☐	☐	☐	☐	☐	☐	☐	Rice
☐	☐	☐	☐	☐	☐	☐	Crackers
☐	☐	☐	☐	☐	☐	☐	Spreads
☐	☐	☐	☐	☐	☐	☐	Snacks
☐	☐	☐	☐	☐	☐	☐	Pastries
☐	☐	☐	☐	☐	☐	☐	Fruit Bars
☐	☐	☐	☐	☐	☐	☐	Granola Bars
☐	☐	☐	☐	☐	☐	☐	Desserts
☐	☐	☐	☐	☐	☐	☐	Fruits
☐	☐	☐	☐	☐	☐	☐	Cakes
☐	☐	☐	☐	☐	☐	☐	Candy
☐	☐	☐	☐	☐	☐	☐	Beverages
☐	☐	☐	☐	☐	☐	☐	Overall MRE

12. Were any of the food items damaged? ☐ YES
IF YES, which items and where did you store that ration?

☐ NO



13. Of the 12 menus available in the MRE, how many MRE menus would you like each of the following items in?

None	1/4	1/2	3/4	All	
☐	☐	☐	☐	☐	Hot Tea (bag)
☐	☐	☐	☐	☐	Iced Tea (powder)
☐	☐	☐	☐	☐	Coffee
☐	☐	☐	☐	☐	Beverage Powder (Sugar)
☐	☐	☐	☐	☐	Beverage Powder (SugarFree)
☐	☐	☐	☐	☐	Apple Cider
☐	☐	☐	☐	☐	Other: _____

Hot Sauce Section

14. Rate the following characteristics of the hot sauce container.

	Very Poor 1	Moderately Poor 2	Slightly Poor 3	Neither Poor Nor Good 4	Slightly Good 5	Moderately Good 6	Very Good 7
Ease of opening	☐	☐	☐	☐	☐	☐	☐
Ease of pouring	☐	☐	☐	☐	☐	☐	☐
Durability of package	☐	☐	☐	☐	☐	☐	☐
Taste of the hot sauce	☐	☐	☐	☐	☐	☐	☐

Please explain any ratings below "Neither Poor Nor Good" (ratings of 1, 2, or 3)

15. Rate the durability of the hot sauce container for field use.

Not at All Durable	Somewhat Durable	Moderately Durable	Very Durable	Extremely Durable
☐	☐	☐	☐	☐

16. Rate the amount of trash generated by the hot sauce container.

Extremely Inappropriate	Moderately Inappropriate	Somewhat Inappropriate	Neither Inappropriate Nor Appropriate	Somewhat Appropriate	Moderately Appropriate	Extremely Appropriate
☐	☐	☐	☐	☐	☐	☐

17. Were there any problems while opening the hot sauce container?
IF YES, please explain.

☐ YES
☐ NO

18. Was the hot sauce container adequate for field use?
IF NO, please explain.

☐ YES ☐ NO

19. How did you open the hot sauce container? Choose all the apply. ☐ using hands ☐ with knife ☐ using teeth ☐ Other: _____ ☐
20. Did the hot sauce spill/splash from the container while you were opening it? ☐ YES ☐ NO
IF NO, goto Q23
21. How often did the hot sauce spill/splash while opening it? ☐ Once ☐ 2-5 times ☐ 6-9 times ☐ Everytime
22. Was the spilling/splashing a problem? ☐ YES ☐ NO
23. Would you liked a hot sauce container that can be reclosed. ☐ YES ☐ NO
24. Do you have any further comments on the MRE ration?
25. Do you have any further comments on the Heat & Serve ration ?
26. Do you have any further comments on the hot sauce container?



APPENDIX C
KCAL TABLES

CONTROL GROUP				
	TOTAL	% KCALS		
	KCALs	B	L	D
DAY 1	2637	34.3%	26.5%	39.2%
DAY 2	2552	38.5%	29.1%	32.4%
DAY 3	2961	47.5%	22.0%	30.5%
DAY 4	2504	37.9%	21.5%	40.6%
DAY 5	2306	38.3%	26.4%	35.3%
DAY 6	3239	50.6%	21.4%	28.0%
DAY 7	2366	29.2%	25.4%	45.4%
DAY 8	2109	39.2%	22.4%	38.5%
DAY 9	1541	50.4%	11.1%	38.5%
AVE	2468	40.8%	23.3%	35.9%

TEST GROUP				
	TOTAL	% KCALS		
	KCALs	B	L	D
2607	32.2%	32.9%	34.9%	
2593	37.5%	31.1%	31.5%	
2573	35.0%	33.7%	31.2%	
2983	33.5%	30.7%	35.9%	
2262	32.7%	33.8%	33.5%	
3136	46.7%	25.9%	27.4%	
2412	29.2%	34.1%	36.7%	
2996	35.0%	27.7%	37.4%	
2355	43.7%	29.1%	27.2%	
2658	36.4%	30.8%	32.9%	

CONTROL GROUP				
	TOTAL	% FAT		
	% FAT	B	L	D
DAY 1	33.0%	11.1%	10.4%	11.5%
DAY 2	31.5%	12.1%	11.0%	8.4%
DAY 3	35.4%	16.4%	8.7%	10.3%
DAY 4	35.2%	17.3%	8.6%	9.2%
DAY 5	33.7%	9.6%	10.6%	13.5%
DAY 6	40.1%	21.2%	8.4%	10.4%
DAY 7	33.9%	7.4%	10.3%	16.2%
DAY 8	30.3%	12.0%	9.0%	9.4%
DAY 9	33.0%	15.5%	4.3%	13.2%
AVE	34.3%	13.9%	9.2%	11.2%

TEST GROUP				
	TOTAL	% FAT		
	% FAT	B	L	D
32.9%	9.2%	12.4%	11.3%	
32.2%	10.4%	11.5%	10.3%	
36.0%	12.4%	12.7%	10.9%	
35.1%	14.1%	11.6%	9.5%	
34.5%	8.9%	13.4%	12.2%	
43.7%	20.1%	10.5%	13.0%	
38.3%	9.7%	13.7%	14.9%	
35.0%	12.4%	11.3%	11.2%	
39.7%	16.7%	11.4%	11.6%	
36.5%	12.9%	12.0%	11.6%	

CONTROL GROUP				
	TOTAL	% PRO		
	% PRO	B	L	D
DAY 1	17.0%	5.7%	3.7%	7.6%
DAY 2	14.6%	5.9%	4.0%	4.7%
DAY 3	15.3%	5.5%	3.4%	6.3%
DAY 4	16.3%	5.5%	3.2%	7.6%
DAY 5	19.2%	8.0%	3.9%	7.3%
DAY 6	11.7%	4.1%	3.2%	4.3%
DAY 7	19.1%	6.3%	3.6%	9.2%
DAY 8	16.2%	6.2%	3.5%	6.5%
DAY 9	19.7%	10.7%	1.3%	7.7%
AVE	16.2%	6.1%	3.4%	6.7%

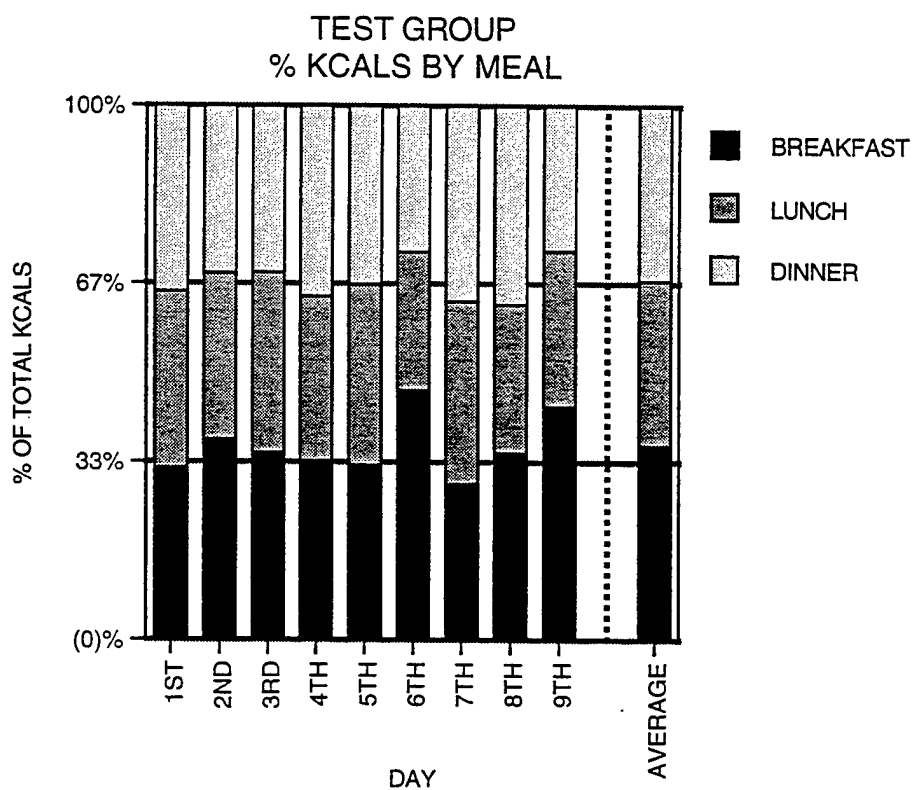
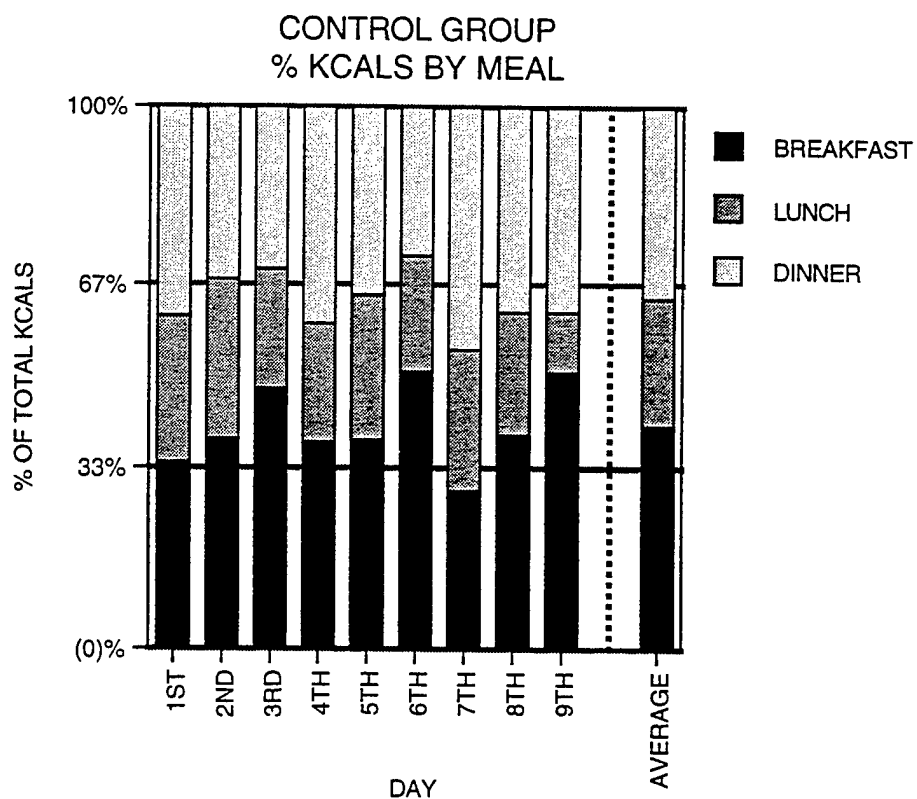
TEST GROUP				
	TOTAL	% PRO		
	% PRO	B	L	D
15.8%	5.3%	4.2%	6.3%	
12.8%	4.6%	4.0%	4.3%	
13.6%	3.5%	4.5%	5.6%	
14.4%	3.8%	3.8%	6.7%	
15.2%	6.6%	4.5%	4.0%	
9.1%	3.7%	3.4%	2.0%	
16.9%	5.8%	4.6%	6.4%	
12.5%	4.8%	3.9%	3.8%	
16.6%	8.0%	3.8%	4.8%	
13.9%	5.0%	4.1%	4.8%	

CONTROL GROUP				
	TOTAL	% CARBO		
	% CARB	B	L	D
DAY 1	50.0%	17.4%	12.5%	20.0%
DAY 2	53.9%	20.6%	14.0%	19.2%
DAY 3	49.3%	25.9%	10.2%	13.2%
DAY 4	48.6%	14.9%	9.8%	23.8%
DAY 5	47.1%	20.7%	12.1%	14.4%
DAY 6	48.3%	24.9%	9.7%	13.6%
DAY 7	47.0%	15.4%	11.5%	20.0%
DAY 8	53.5%	21.1%	10.0%	22.4%
DAY 9	47.3%	24.1%	5.6%	17.6%
AVE	49.5%	20.7%	10.8%	18.0%

TEST GROUP				
	TOTAL	% CARBO		
	% CARB	B	L	D
	51.3%	17.6%	16.0%	17.7%
	55.0%	22.3%	15.4%	17.3%
	50.4%	19.0%	16.2%	15.2%
	50.5%	15.5%	15.4%	19.6%
	50.3%	17.2%	15.7%	17.4%
	47.2%	22.9%	12.0%	12.3%
	44.9%	13.9%	15.9%	15.1%
	52.5%	18.7%	13.1%	20.7%
	43.7%	19.0%	13.5%	11.2%
	49.6%	18.6%	14.7%	16.3%

CONTROL GROUP				
	TOTAL	% NA		
	% NA	B	L	D
DAY 1	4613	47.9%	23.8%	28.3%
DAY 2	3737	41.6%	29.7%	28.7%
DAY 3	4339	37.9%	24.1%	38.0%
DAY 4	4461	32.8%	20.6%	46.5%
DAY 5	4263	44.3%	22.8%	32.9%
DAY 6	4689	32.8%	21.5%	45.7%
DAY 7	3942	39.0%	23.9%	37.2%
DAY 8	4111	36.5%	16.6%	47.0%
DAY 9	2867	55.3%	7.4%	37.3%
AVE	4113	40.3%	21.6%	38.1%

TEST GROUP				
	TOTAL	% NA		
	% NA	B	L	D
	4750	43.6%	27.7%	28.7%
	4329	35.4%	30.2%	34.5%
	3164	29.8%	44.6%	25.6%
	4680	27.9%	27.9%	44.3%
	4054	38.9%	30.5%	30.6%
	4396	30.1%	28.6%	41.3%
	5087	28.8%	25.7%	45.5%
	4481	33.2%	29.2%	37.6%
	4577	49.9%	23.3%	26.8%
	4391	35.4%	29.1%	35.5%



APPENDIX D
PORTION SIZE RATINGS

MRE

	<u>Food Item</u>	Amount of food in <u>Meal</u>	Amount of food in <u>Entree</u>
Control Grp	Pork w/Rice	3.4	3.7
	Corned Beef Hash	3.7	4.0
	Chicken Stew	4.0	3.8
	Omelet w/Ham	3.4	3.9
	Spaghetti w/Meat Sauce	3.8	3.7
	Smoky Franks	3.3	3.6
	Beef Stew	3.7	3.6
	Ham Slices	3.7	3.5
	Pork Chow Mein	3.3	3.6
	Tuna w/Noodles	3.7	3.9
	Chicken w/Rice	3.7	3.6
	Esc Potatoes w/Ham	3.7	4.0
Test Grp	Teriyaki Beef	3.9	3.6
	Meatloaf w/Gravy	3.7	3.7
	Beef Enchiladas	3.5	3.7
	Spicy Oriental Chicken	3.8	3.7
	Salsa Chicken	3.6	3.8
	Pasta Primavera Alfredo	3.6	3.7
	Sausage Patty	3.1	3.7

Heat & Serve

	<u>Food Item</u>	Amount of food in <u>Meal</u>	Amount of food in <u>Entree</u>
Breakfast			
Control Grp	Eggs	3.9	3.7
	Creamed Ground Beef	3.7	3.8
	Waffles	3.4	3.6
	Corned Beef Hash	3.9	4.0
	Creamed Ground Beef	3.6	3.8
Test Grp	Eggs	3.9	4.1
	Creamed Ground Beef	3.7	3.8
	Blueberry Waffles	3.6	3.4
	Roast Beef Hash	3.6	4.2
Dinner			
Control Grp	Chicken Breast	3.6	3.6
	Lasagna	3.6	3.7
	Meatballs w/Gavy	3.8	3.7
	Boneless BBQ Pork Ribs	3.9	3.6
	Beef Patties	3.7	3.7
	Chicken Chow Mein	3.9	3.7
	Beef Patties	3.7	3.7
	Spaghetti w/Meatballs	3.9	3.9
	Turkey Slices	3.9	3.6
Test Grp	Chicken Breast	3.6	4.1
	Boneless BBQ Pork Ribs	3.8	3.8
	Chicken Teriyaki	3.8	3.9
	Beef Franks	3.6	3.7
	Turkey Slices w/Gravy	3.8	3.9