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TECHNICAL REPORT
DTIC/FA 33/843

FOOD PRODUCTION GUIDES FOR
DRAFTED DIETS AT WALTER REED ARMY
MEDICAL CENTER
PART III: MEAT SUBSTITUTE ENTREES

by

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

1. REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER NATICK/TR-79/013	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. ENTREE PRODUCTION GUIDES FOR MODIFIED DIETS AT WALTER REED ARMY MEDICAL CENTER - PART IV. MEAT SUBSTITUTE ENTREES. A069153		5. TYPE OF REPORT & PERIOD COVERED Final report
6. AUTHOR(s) G. A. Darsch, R. G. Young, C. P. Shaw and J. M. Tuomy		7. PERFORMING ORGANIZATION REPORT NUMBER FEL-92
8. CONTRACT OR GRANT NUMBER(s)		
9. PERFORMING ORGANIZATION NAME AND ADDRESS US Army Natick Research & Development Command Animal Products Group ATTN: DRDNA-WTA Natick, Massachusetts 01760		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS .19 93146919000
11. CONTROLLING OFFICE NAME AND ADDRESS US Army Natick Research & Development Command Animal Products Group ATTN: DRDNA-WTA Natick, Massachusetts 01760		12. REPORT DATE May 1979
13. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		14. NUMBER OF PAGES 70
15. SECURITY CLASS. (of this report) UNCLASSIFIED		16. DECLASSIFICATION/DOWNGRADING SCHEDULE
17. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
18. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report) 12/72		
19. SUPPLEMENTARY NOTES 14 NATICK/FEL-92		
20. KEY WORDS (Continue on reverse side if necessary and identify by block number) FOOD PREPARATION MEAT SUBSTITUTE MODIFIED DIETS COOK-FREEZE SYSTEMS SENSORY EVALUATION PROTEIN PRODUCTION GUIDES STORAGE STABILITY WALTER REED ARMY MEDICAL CENTER ENTREES SHELF LIFE		
21. ABSTRACT (Continue on reverse side if necessary and identify by block number) Entree production guides for meat substitutes suitable for a cook/freeze system have been developed. The thirteen meat substitutes have a high sensory quality and incorporate a relatively high level of protein.		

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PREFACE

This project was completed at the U.S. Army Natick Research and Development Command at the request of personnel of the Walter Reed Army Medical Center and was funded under Intra-Army Order for Reimbursable Services No. S 49193-7008.

The authors wish to thank the Analytical Branch of the Food Science Laboratory for performing the nutritional analyses. The assistance of Mr. Robert Scott and Miss Melanie Piscia in carrying out the sensory evaluations is also appreciated.

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ENTREE PRODUCTION GUIDES FOR MODIFIED DIETS
AT WALTER REED ARMY MEDICAL CENTER
PART III: DENTAL LIQUID ENTREES

FOREWORD

Cook-freeze systems are becoming increasingly important in the Armed Forces feeding systems, as well as in hospital feeding, both military and non-military. The construction of a new Walter Reed Army Medical Center (WRAMC) using a cook-freeze system resulted in the development at the U.S. Army Natick Research and Development Command (NARADCOM) of 38 guides designed for this system. These guides, published in Technical Report Natick/TR-77/005¹, were designed for regular hospital feeding, either for patients on nonrestricted diets or for cafeteria use. Other production guides for military cook-freeze systems have been published at NARADCOM.^{2, 3, 4, 5, 6}

¹ R. Young, C. Shaw, G. Darsch, J. Tuomy and G. Walker; Meat and Fish Entree Item Production Guides Prepared for Walter Reed Army Medical Center. Natick/TR-77/005 (FEL 77-004) April 1977 (A.D. A004476)

² R. Helmer, H. Schlup; Meat Entree Production Guides Developed for Use in Fort Lee Interim Central Food Preparation Facility. Natick/TR-74-27 (FEL) March 1975 (A.D. A009733)

³ A. Rahman, H. Gorfein, N. Kelley, G. Schafer, W. Swantak and D. Westcott; Production Guides for Vegetables, Entrees, Soups, Desserts, Pastries and Salads Developed for Use in Central Food Preparation Facility. Natick/TR-75-35 (FEL 13) September 1974 (A.D. A001725)

⁴ A. Rahman, H. Schlup, G. Schafer, W. Swantak and N. Kelley; Production Guides for Meat and Vegetable Entrees and Desserts Developed for Use in the Frozen Foil Pack Feeding System, F.E. Warren Air Force Base. Natick/TR-70-20 (FEL) February 1976 (A.D. 694354)

⁵ J. Tuomy, G. Walker, L. Hinnergardt; Pilot Plant Production of Frozen Entree Items for the Navy. Natick/TR-76-31A (FEL 59) September 1976 (A.D. A031327)

⁶ G. Walker, J. Tuomy, C. Kanter; Egg Products for Use in a Cook/Freeze System. Natick/TR-76-28 (FEL 57) August 1976 (A.D. A031327)

At the request of personnel at WRAMC, production guides for modified or restricted diets have been developed at NARADCOM. The dietary restrictions follow the guidelines prescribed by the dietary staff at WRAMC. The requests for production guides for entrees fall into five major categories, each of which are the subjects of Technical Reports:

Part I: Consolidated Modified Meat Entree Production Guides⁷ for patients on:

- a. Calorie restricted, type II, hyperlipoproteinemia^{*} diabetic, bland diets.
- b. Sodium restricted, calorie restricted, type II, hyperlipoproteinemia, diabetic, bland diets.

Part II: Pureed Bland Entree Production Guides⁸ for patients unable to chew regular entrees.

Part III: Dental Liquid Entree Production Guides⁹ for patients on a liquid diet.

Part IV: Meat Substitute Entrees¹⁰ for patients not desiring to eat meat, fish, or poultry.

Part V: Renal diet items¹¹ for patients with restricted protein, potassium and sodium intake.

⁷C. Shaw, G. Darsch, G. Legris, Y. Masuoka and J. Tuomy; Entree Production Guides for Modified Diets at Walter Reed Army Medical Center, Part I: Consolidated Modified Meat Entrees. Natick/TR-79/010 1979.

⁸C. Shaw, V. Loveridge, G. Darsch and J. Tuomy; Entree Production Guides for Modified Diets at Walter Reed Army Medical Center, Part II: Pureed Bland Entrees. Natick/TR-79/011 1979.

⁹C. Shaw, V. Loveridge, G. Darsch and J. Tuomy; Entree Production Guides for Modified Diets at Walter Reed Army Medical Center, Part III: Dental Liquid Entrees. Natick/TR-79/012 1979.

¹⁰G. Darsch, R. Young, C. Shaw and J. Tuomy; Entree Production Guides for Modified Diets at Walter Reed Army Medical Center, Part IV: Meat Substitute Entrees. Natick/TR-79/013 1979.

¹¹J. McNutt, M. Branagan, J. McPhee, L. Albertini and M. Klicka; Entree Production Guides for Modified Diets at Walter Reed Army Medical Center, Part V: Production Guides for Patients on Renal Diets. Natick/TR-79/014 1979.

^{*}Type II hyperlipoproteinemia diets are low in unsaturated fats and cholesterol. Because these diets are also restricted in calories, all fats have been restricted.

The first section, Part I, of Modified Diets consolidates several different types of diet restrictions, thus allowing the hospital to drastically reduce the number of special diets needed. By careful formulation, these products have retained high flavor quality. The second section, Part II, includes diets designed to upgrade the quality and vary the types of pureed diluted foods or commercial baby foods that are usually served to patients requiring a bland diet of pureed consistency. The third type of diet in Part III, the Dental Liquid, represents a totally new concept in liquid feeding. The production guides in this section make up liquid foods having the taste of a regular entree. Thus, instead of drinking sweet milkshake-type products, a patient can order such liquids as chicken curry, ham with raisin sauce, or veal paprika. The fourth section, Part IV, contains production guides for entrees not containing meat, fish, or poultry. These are designed for the increasing numbers of vegetarian patients. Part V, Renal Diets, consists of eight very carefully weighed entrees and one dessert. These items are designed to give some variety in the diet for the patient with renal dysfunction where calories, protein, sodium, and potassium need to be carefully monitored.

For use in the WRAMC facility, all of the production guides, except those for the Renal Diets, have been written in 100-portion servings using both English and metric units and English volumes of liquids. Percentages of each ingredient are given to allow easy conversion to various sized batches. In order that these guides may be helpful to smaller military hospitals, ten serving portions are given, using common (US customary) kitchen measurements. Production guides for the renal diets are based on percentages, twenty-five portions in both metric and customary units and one-portion servings in metric units. Directions for serving the products without the freezing process are given for the benefit of small hospitals which may not have freezing capabilities.

ENTREE PRODUCTION GUIDES FOR MODIFIED
DIETS AT WALTER REED ARMY MEDICAL CENTER

PART V: MEAT SUBSTITUTE ENTREES

INTRODUCTION

✓
The production guides contained in this report consist of thirteen meat substitutes. The primary purpose of these items is to serve as entrees for patients, who as vegetarians or by religious doctrine require meatless products. Secondly, these entrees are available for patients who desire a meatless item as a variation in their normal diet.

Presently, in the majority of hospital feeding systems, a patient desiring a product of this type must select from a limited meatless menu, trying to construct his own entree. However, with the development of the meat substitute as a separate entity, he now has this option readily available. ↙

The parameters considered in formulating these products were two-fold: First, the development of meat substitutes of high sensory quality, and secondly the incorporation of a relatively high level of protein.

PROCEDURE

WRAMC submitted a list consisting of 13 meat substitutes to NARADCOM for modification. The items ranged in variety from casseroles and omelets to fondues. The modifications implemented resulted in a more acceptable product for a cook-freeze system.

Small batches of each product were made by food technologists at NARADCOM. Modifications were made until an acceptable product was obtained. This product was then made in a large-scale production batch. At this point, samples were formally evaluated by a ten-member technological panel for color, odor, flavor, texture and appearance. Quality rating scales with values ranging from 1 (extremely poor) through 9 (excellent) were used. Results of these evaluations can be found in Table 1. Proximate nutritional analyses were performed on each item. Table 2 contains these test results.

Storage tests (0°F (-18°C)) are being performed on each meat substitute. Sensory evaluations will be made at 3, 6, and 12 months. Results of these storage studies will be published upon completion and will give an indication of the shelf-life of these products.

BOWS SUPREME
Meat Substitute

Each Portion
8 oz (227 g)

Ingredients	Percent	100 Portions		Volume (liquids)	10 Portions	
		Pounds	Grams		Weight	Measure
1. Pasta, bows	8.64	4.16	1887		6 1/2 oz	
2. Cheese, cheddar	9.75	4.69	2127		7 1/2 oz	
Cheese, blue	0.50	0.24	109		1/2 oz	
3. Margarine	1.68	0.81	367			7 3/4 tsp
Flour, wheat, general purpose	0.75	0.36	163			5 1/3 tsp
4. Milk, homogenized	60.90	29.30	13,290	3 1/3 gal		5 1/2 cup
Mushrooms, canned, drained	9.50	4.57	2073			1 1/3 cup
Salt, table, iodized	0.75	0.36	163			1 tbsp
Pepper, white, ground	0.03	0.01	4			1/8 tsp
5. Water	3.00	1.44	653	2 3/4 cup		1/4 cup
Starch, Col-Flo 67	1.50	0.72	326			1/4 cup
6. Sherry flavoring	3.00	1.44	653	2 3/4 cup		1/4 cup
TOTALS	100.00	48.10	21,815			

BOWS SUPREME

Meat Substitute

PROCEDURE:

- 1a. Cook bows in excess water until tender.
- b. Drain.
- c. Cool to about 50°F (10°C) and remove for step 6e.
2. Cut cheddar and blue cheese into small pieces and reserve for step 4a.
- 3a. Melt margarine.
- b. Make roux with flour.
- 4a. Add ingredients listed in section 4 of ingredients listing with cheese from step 2 to roux.
- b. Gradually heat to 160°F (71°C) to melt cheese, stirring constantly.
- 5a. Make a starch slurry using ingredients listed in section 5 of ingredients listing.
- b. Add slurry to above and heat to 180°F (82°C).
- 6a. Add sherry flavoring from step 6 of ingredients listing to above.
- b. Mix until well blended.
- c. Add back water to maintain formula weight or volume.
- d. Cool sauce to about 50°F (10°C).
- e. Add bows from step 1c to above and mix gently.
- f. Place 8 oz (227 g) in each individual container.
- g. Cover, label, and freeze.

BOWS SUPREME

Meat Substitute

NOTES:

1. Formula includes a 10% overrun. Theoretical yield for 100 portions: 110 servings. Theoretical yield for 10 portions: 11 servings.

2. Formula is based on a 2.7-fold increase in pasta. Weight of cooked bows for 100 portions should be approximately 11 lb (5.0 kg). Total weight of product for 100 portions using cooked pasta should be 55 lb (24.9 kg).

3. Final weight of 100 servings is 43.9 lb (19.9 kg). Final volume of 100 servings is 4.9 gal (18.5 L). One gallon weighs 9 lb (4.0 kg).

4. To serve without freezing, follow directions through step 6e, but do not cool sauce or bows. Heat to bring temperature back to 160°F (71°C). Serve 8 oz (227 g) portions of heated product.

BOWS SUPREME
Meat Substitute

Ingredients

Dairy Foods and Eggs

1. Cheese, blue-veined, natural - NSN-8910-00-582-1401, MIL-C-35091, Type I, Style 1.
2. Cheese, cheddar, natural - NSN-8910-00-125-8440, Grade A, Fed. C-C-271, Class 2, Style F, Size 6.
3. Milk, homogenized - NSN-8910-00-584-6435, Fed. C-M-001678, Type 1, Class 1.

Fruits and Vegetables

4. Mushrooms, canned - NSN-8915-00-935-6629, US Grade A, Fed. JJJ-V-1746/9, Type II, Style E.

Bakery and Cereal Products

5. Flour, wheat, general purpose - NSN-8920-00-140-7748, Fed. N-F-00481, Type III, Class B, Style 2.

Food Oils and Fats

6. Margarine - NSN-8945-00-616-0078, Fed. EE-M-0045, Type I.

Condiments and Related Products

7. Pepper, white - NSN-8950-00-245-2302, Fed. EE-S-631, Type II.
8. Salt, table, iodized - NSN-8950-00-262-8886, Fed. SS-S-31.

Special Procurement

9. Pasta, bows.
10. Sherry flavoring.
11. Starch, Col-Flo 67.

Meat Substitute

Each Portion
1 sandwich 5 OZ (142 g)

Ingredients	Percent	100 Portions		Volume (liquids)	10 Portions	
		Pounds	Grams		Weight:	Measure
1. Bread	25.94	13.57	6155	220 slices	1 lb 6 oz	22 slices
2. Cheese, American, processed	25.17	13.18	5978		1 lb 5 oz	
3. Milk, homogenized	34.64	18.13	8224	2 gal		3 1/3 cup
Eggs, whole, frozen	10.07	5.27	2390	2 1/2 qt		1 cup
Butter	4.01	2.10	953			1/2 cup
Salt, table, iodized	0.13	0.07	32			1/2 tsp
4. Paprika, ground	0.04	0.02	9			1/2 tsp
TOTALS	100.00	52.34	23,741			

CHEESE STRATA

Meat Substitute

PROCEDURE:

- 1a. Trim crust from bread.
- b. Spray sheet pans lightly with vegetable coating agent.
- c. Place bottom slices for sandwich on sheet pans allowing adequate air space (approximately 0.5 inch or 1.27 cm) between slices. Hold for step 3b.
- 2a. Slice cheese to 1/4 inch (0.64 cm) to yield approximately 1.9 oz (54 g) per slice.
- b. Hold for step 3c.
- 3a. Combine ingredients listed in section 3 of ingredients listing and mix well.
- b. Pour half of mixture from step 3a over slices of bread from step 1 in sheet pans, retaining remainder for step 3d. Take care to uniformly cover each bread slice with sauce.
- c. Place 1 portion of cheese from step 2 on each slice of bread.
- d. Place top slice of bread on each sandwich.
- e. Pour remaining half of mixture from step 3b evenly over sandwiches.
- f. Place sheet pans in convection oven at 275°F (135°C) and bake for 45 minutes, or until an evenly browned crust is formed.
- g. Cool to room temperature, about 70°F (21°C).
- 4a. Sprinkle lightly with paprika for garnish.
- b. Place one sandwich in each individual container.
- c. Cover, label, and freeze.

CHEESE STRATA

Meat Substitute

NOTES:

1. Formula includes 10% overrun. Theoretical yield for 100 portions: 110 servings. Theoretical yield for 10 portions: 11 servings.

2. Formula is based on an approximate yield of 82% from bread with crust to bread without crust. Weight of bread crust removed should be about 11.1 lb (5.0 kg). The above is only a guide. Use slices of bread to insure adequate portions.

3. To serve without freezing, follow directions through step 3f, sprinkle lightly with paprika for garnish. Serve one hot sandwich per serving.

CHEESE STRATA

Meat Substitute

Ingredients

Bakery and Cereal Products

1. Bread, white - NSN-8920-00-753-5776, Fed. EE-B-00671 (Army GL), Type I, Class B, Style 1 variety a or b.

Dairy Food and Eggs

2. Butter - NSN-8910-00-616-0038, Fed. C-B-801, Style (b), Class 1.
3. Eggs, whole, frozen - NSN-8910-00-616-0051, Fed. C-E-00230, Type II, Kind a, Class 1.
4. Milk, homogenized - NSN-8910-00-584-6435, Fed. C-M-001678, Type 1, Class 1.
5. Cheese, American, processed - NSN-8910-00-082-6205, Fed. C-C-291, Type 1, Style C.

Condiments and Related Products

6. Paprika, ground - NSN-8950-00-170-9563, Fed. EE-S-631.
7. Salt, table, iodized - NSN-8950-00-262-8886, Fed. SS-S-31.

CHINESE OMELET

Meat Substitute

Each Portion

6 oz (170 g)

18

CHINESE OMELET
Meat Substitute

PROCEDURE:

- 1a. Cook rice in excess water until tender.
- b. Drain and cool to about 50°F (10°C).
- c. Reserve for step 5c.
- 2a. Beat eggs until whites and yolks are well blended.
- b. Reserve for step 5a.
3. Cut cheddar cheese into small pieces.
- 4a. Combine ingredients listed in section 4 of ingredients listing with cheese from step 3.
- b. Gradually heat to 160°F (71°C) to melt cheese, stirring constantly.
- c. Remove from heat.
- 5a. Add ingredients listed in section 5 of ingredients listing and eggs from step 2b to above.
- b. Mix well.
- c. Add rice from step 1c.
- d. Mix gently.
- e. Add back water to maintain formula weight or volume.
- f. Spray half-size steam table pans lightly with vegetable shortening.
- g. Pour 2.5 lb (1134 g) of omelet mix into half-size steam table pans.
- h. Place half-size steam table pans in a convection oven at 325°F (162°C) and bake for approximately 15 minutes to an internal temperature of 160°F (71°C).
- i. Cool to about 50°F (10°C).
- j. Cut into 6 oz (170 g) portions and place one portion in each individual container.
- k. Cover, label, and freeze.

CHINESE OMELET

Meat Substitute

NOTES:

1. Formula includes a 10% overrun. Theoretical yield for 100 portions: 110 servings. Theoretical yield for 10 portions: 11 servings.

2. Formula is based on a 90% yield from raw to cooked omelet. Weight of cooked omelet for 100 portions should be approximately 41.2 lb (18.7 kg).

3. Final weight of omelet mixture for 100 servings is 45.8 lb (20.7 kg). Final volume for 100 servings is 5.3 gal (20.0 L). One gallon (3.8 L) weighs 8.5 lb (3.8 kg).

4. To serve without freezing, follow directions through step 5h. Cut into 6 oz (170 g) portions and serve hot.

CHINESE OMELET

Meat Substitute

Ingredients

Dairy Foods and Eggs

1. Cheese, cheddar, natural - NSN-8910-00-125-8440, Grade A, Fed. C-C-271, Class 2, Style F, size 6.
2. Eggs, whole, frozen - NSN-8910-00-616-0051, Fed. C-E-00230, Type II, Kind (a), Class 1.
3. Milk, homogenized - NSN-8910-00-584-6435, Fed. C-M-001678, Type 1, Class 1.

Fruits and Vegetables

4. Bean sprouts, canned - NSN-8915-00-290-2029, MIL-B-35012.
5. Onions, dry - NSN-8915-00-616-0200, Fed. HHH-V-1744/40.

Bakery and Cereal Products

6. Rice, parboiled - NSN-8920-00-782-2980, US No. 1 Grade, Fed. N-R-00351, Class 1.

Condiments and Related Products

7. Pepper, white - NSN-8950-00-245-2302, Fed. EE-S-631, Type II.
8. Salt, table, iodized - NSN-8950-00-262-8886, Fed. SS-S-31.
9. Soy sauce - NSN-8950-00-935-3254, Fed. EE-S-610.

CORN AND CHEESE CASSEROLE

Meat Substitute

Each Portion

8 oz (227 g)

Ingredients	Percent	100 Portions		Volume (liquids)	10 Portions	
		Pounds	Grams		Weight	Measure
1. Cheese, American	13.72	7.55	3425		12 oz	
2. Margarine	1.86	1.02	463			1/4 cup
Flour, wheat, general purpose	1.82	1.00	454			1/3 cup
3. Milk, homogenized	27.83	15.31	6945	1 3/4 gal		2 3/4 cup
Eggs, frozen, whole, beaten	8.32	4.58	2077	2 qt		1 cup
Peppers, red, canned, drained, diced	4.71	2.59	1175			1/2 cup
Salt, table, iodized	0.12	0.07	32			1/2 tsp
Worcestershire sauce	0.12	0.07	32	6 3/4 tsp		2/3 tsp
Paprika, ground	0.06	0.03	14			2/3 tsp
Mustard, ground	0.04	0.02	9			1/2 tsp
Pepper, white, ground	0.03	0.016	7			1/4 tsp
Garlic, granulated	0.03	0.016	7			1/4 tsp
4. Water	4.15	2.28	1034	4 1/3 cup		1/2 cup
Starch, Col-Flo 67	2.00	1.10	499			1/3 cup
5. Corn, whole, kernel, frozen	35.19	19.348	8776		1 lb 15 oz	
TOTALS	100.00	55.00	24,949			
			22			

CORN AND CHEESE CASSEROLE

Meat Substitute

PROCEDURE:

1. Cut American cheese into small pieces and reserve for step 3a.
- 2a. Melt margarine.
 - b. Make a roux with flour.
- 3a. Add ingredients listed in section 3 of ingredients listing with cheese from step 1 to roux.
 - b. Gradually heat to 160°F (71°C) to melt cheese, stirring constantly.
- 4a. Make a starch slurry using ingredients listed in section 4 of ingredients listing.
 - b. Add slurry to above and heat to 180°F (82°C).
 - c. Add back water to maintain formula weight or volume.
- 5a. Add frozen whole kernel corn to above.
 - b. Mix well.
 - c. Cool corn and cheese casserole to about 50°F (10°C).
 - d. Place 8 oz (227 g) in each individual container.
 - e. Cover, label, and freeze.

CORN AND CHEESE CASSEROLE

Meat Substitute

NOTES:

1. Formula includes 10% overrun. Theoretical yield for 100 portions: 110 servings. Theoretical yield for 10 portions: 11 servings.

2. Final weight of sauce for 100 servings excluding corn is 35.6 lb (16.1 kg). Final volume for 100 servings is 4.0 gal (15.1 L). One gallon (3.8 L) weighs 9 lb (4.0 kg).

3. To serve without freezing, follow directions through step 5b, but do not cool. Heat to bring temperature back up to 160 F (71 C) and serve 8 oz (227 g) portions of heated product.

CORN AND CHEESE CASSEROLE

Meat Substitute

Ingredients

Dairy Foods and Eggs

1. Cheese, American, processed - NSN-8910-00-082-6205, Fed. C-291, Type I, Style C.
2. Eggs, whole, frozen - NSN-8910-00-616-0051, Fed. C-E-00230, Type II, Kind (a), Class 1.
3. Milk, homogenized - NSN-8910-00-584-6435, Fed. C-M-001678, Type I, Class 1.

Fruits and Vegetables

4. Corn, frozen, whole kernel - NSN-8915-00-082-5599, US Grade A, Fed. HHH-V-1745/8, Style 1, Color (a).
5. Garlic, dehydrated - NSN-8915-00-616-5465, Fed. JJJ-O-1866, Type II.
6. Peppers, sweet, canned - NSN-8915-00-249-4873.

Bakery and Cereal Products

7. Flour, wheat, general purpose - NSN-8920-00-140-7748, Fed. N-F-481, Type III, Class B, Style 2.

Food Oils and Fats

8. Margarine - NSN-8945-00-616-0078, Fed. EE-M-0045, Type I.

Condiments and Related Products

9. Mustard, flour - NSN-8950-00-170-9567, Fed. EE-S-631, Type III.
10. Paprika, ground - NSN-8950-00-170-9563, Fed. EE-S-631.
11. Pepper, white, ground - NSN-8950-00-245-2302, Fed. EE-S-631, Type II.
12. Salt, table, iodized - NSN-8950-00-262-8886, Fed. SS-S-31.
13. Worcestershire sauce - NSN-8950-00-082-6177, Fed. EE-W-600.

Special Procurement

14. Starch, Col-Flo 67.

CREOLE EGGS
Meat Substitute

Each Portion
7 oz (198 g)

Ingredients	Percent	100 Portions		Volume (liquids)	10 Portions	
		Pounds	Grams		Weight	Measure
1. Eggs, (frozen, cooked, roll)	42.87	20.63	9358		2 lb 1 oz	
2. Tomatoes, canned in heavy puree	30.20	14.53	6591			2 3/4 cup
Celery, fresh, diced	5.40	2.60	1179			3/4 cup
Mushroom, canned, drained, pieces	4.07	1.96	889			1/2 cup
Peppers, green, frozen, diced	3.41	1.64	744			1/2 cup
Sugar	1.08	0.52	236			5 tsp
Onions, dehydra- ted, chopped	0.56	0.27	122			6 1/2 tsp
Juice, lemon, reconstituted	0.56	0.27	122	1/2 cup		2 1/2 tsp
Salt, table, iodized	0.52	0.25	113			2 tsp
Garlic, granulated	0.06	0.03	14			1/2 tsp
Bay, ground	0.02	0.01	4			1/8 tsp
Allspice, ground	0.02	0.01	4			1/8 tsp
Hot sauce	0.01	0.005	2	1/2 tsp		< 1/8 tsp (pinch)
Pepper, cayenne	0.01	0.005	2			< 1/8 tsp (pinch)
3. Water	9.38	4.51	2046	2 1/4 qt		3/4 cup
Starch, Col-Flo 67	0.89	0.43	195			6 3/4 tsp
Flour, wheat general purpose	0.69	0.33	150			5 tsp
			26			

Meat Substitute

7 oz (198 g)

Ingredients	Percent	100 Portions		Volume (liquids)	10 Portions	
		Pounds	Grams		Weight	Measure
4. Liquid smoke, C-3	0.25	0.12	54	1/4 cup		1 tsp
TOTALS	100.00	48.12	21,826			

CREOLE EGGS

Meat Substitute

PROCEDURE:

Egg Preparation

1a. Slice tempered (30°F (-1°C)) egg roll into approximately 1/4 inch (6 mm) slices.

b. Place 3.0 oz (85 g) into each individual container.

Sauce Preparation

2a. Combine ingredients listed in section 2 of ingredients listing.

b. Mix well.

c. Heat to 160°F (71°C).

3a. Make a starch flour slurry, using ingredients listed in section 3 of ingredients listing.

b. Add to above and heat to 180°F (82°C).

4a. Add liquid smoke, listed in section 4 of ingredients listing to above.

b. Mix well.

c. Add back water to maintain formula weight or volume.

d. Cool to about 50°F (10°C).

e. Pour 4.0 oz (113 g) of sauce over eggs in each individual container.

f. Cover, label, and freeze.

CREOLE EGGS

Meat Substitute

NOTES:

1. Formula includes a 10% overrun. Theoretical yield for 100 portions: 110 servings. Theoretical yield for 10 portions: 11 servings.

2. Final weight of sauce for 100 servings is 27.5 lb (12.4 kg). Final volume of sauce for 100 servings is 3.1 gal (11.7 L). One gallon (3.8 L) weighs 8.7 lb (3.9 kg).

3. To serve without freezing, follow directions through step 4c, but do not cool sauce. Shingle 3 oz (85 g) sliced eggs in pans and cover with 4 oz (115 g) of creole sauce. Heat in convection oven at 325°F (162°C) for approximately 15 minutes to an internal temperature of 160°F (71°C). Serve 7 oz (198 g) portions.

CREOLE EGGS

Meat Substitute

Ingredients

Fruits and Vegetables

1. Celery, fresh - NSN 8915-00-926-4925, Fed. HHH-V-1744/12.
2. Garlic, dehydrated, granulated - NSN-8915-00-616-5465, Fed. JJJ-O-1866, Type II.
3. Juice, lemon, frozen - NSN-8915-00-2676, MIL-J-11174.
4. Mushrooms, canned - NSN-8915-00-935-6629, Fed. JJJ-V-1746/9 Type II, Style E.
5. Onions, dehydrated, chopped - NSN-8915-00-128-1179, Fed. JJJ-O-1866, Type I, Style 4.
6. Peppers, sweet, frozen, green - NSN-8915-00-081-0856, Fed. HHH-V-1745/15, Type I, Style E.

Bakery and Cereal Products

7. Flour, wheat, general purpose - NSN-8920-00-140-7748, Fed. N-F-00481, Type III, Class B, Style 2.

Sugar, Confectionery, and Nuts

8. Sugar, NSN-8925-00-127-3073, Fed. JJJ-S-791, Type I, Class a.

Condiments and Related Products

9. Allspice, ground - NSN-8950-00-170-9562, Fed. EE-S-631, Type II.
10. Hot sauce - NSN-8950-00-926-9939, MIL-H-35021.
11. Salt, table, iodized - NSN-8950-00-262-8886, Fed. SS-S-31.

Special Procurement

12. Bay, ground.
13. Egg roll, frozen, cooked.
14. Liquid smoke, Char-sol C-3.
15. Pepper, cayenne, ground.
16. Starch, Col-Flo 67.
17. Tomatoes, canned, in heavy puree

MACARONI, CHEESE AND TOMATO CASSEROLE

Meat Substitute

Each Portion

8 oz (227 g)

Ingredients	Percent	100 Portions		Volume (liquids)	10 Portions	
		Pounds	Grams		Weight	Measure
1. Macaroni, elbow	13.24	5.76	2613		9 oz	
2. Cheese, cheddar	10.12	4.40	1996		7 oz	
3. Margarine	2.56	1.11	503		1/4 cup	
Flour, wheat, general purpose	1.56	0.68	308		1/4 cup	
4. Milk, homogenized	44.06	19.16	8691	2 1/4 gal	3 1/2 cup	
Tomatoes, canned, whole	20.85	9.07	4114		2 cup	
Sugar	0.75	0.33	150		1 tbsp	
Salt, table, iodized	0.43	0.19	86		1 1/2 tsp	
Onions, minced, dehydrated	0.15	0.06	27		1 1/2 tsp	
Pepper, white, ground	0.03	0.01	4		1/8 tsp	
5. Water	3.50	1.52	689	3 cup	1/3 cup	
Starch, Col-Flo 67	1.75	0.76	345		1/4 cup	
6. Baco's, imitation bacon bits	1.00	0.43	195		3 tbsp	
TOTALS	100.00	43.48	19,721			

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MACARONI, CHEESE AND TOMATO CASSEROLE

Meat Substitute

PROCEDURE:

- 1a. Cook elbow macaroni in excess water until tender.
- b. Drain.
- c. Cool to about 50°F (10°C), and reserve for step 5e.
2. Cut cheddar cheese into small pieces and reserve for step 4a.
- 3a. Melt margarine.
- b. Make a roux with flour.
- 4a. Add ingredients listed in section 4 of ingredient listing with cheese from step 2 to above.
- b. Gradually heat to 160°F (71°C) to melt cheese stirring constantly.
- 5a. Make a starch slurry using ingredients listed in section 5 of ingredients listing.
- b. Add slurry to above and heat to 180°F (82°C).
- c. Add back water to maintain formula weight or volume.
- d. Cool sauce to about 50°F (10°C).
- e. Add macaroni from step 1c to above and mix gently.
- f. Place 8 oz (227 g) of macaroni, cheese and tomato casserole in each individual container.
- 6a. Sprinkle each individual casserole with approximately 1 tsp Baco's as a garnish.
- b. Cover, label, and freeze.

MACARONI, CHEESE AND TOMATO CASSEROLE

Meat Substitute

NOTES:

1. Formula includes 10% overrun. Theoretical yield for 100 portions: 100 servings. Theoretical yield for 10 portions: 11 servings.

2. Formula is based on a three fold increase of macaroni. Weight of cooked elbows for 100 portions should be approximately 17.3 lb (7847 g). Total weight of product for 100 portions using cooked macaroni should be 55 lb (24.9 kg).

3. Final weight of sauce for 100 servings excluding macaroni and garnish is 37.3 lb (16.9 kg). Final volume of sauce for 100 servings is 4.1 gal (15.5 L). One gallon (3.8 L) weighs 9 lb (4.0 kg).

4. To serve without freezing, follow directions through step 5e but do not cool macaroni or sauce. Heat casserole to bring temperature up to 160°F (71°C) and serve 8 oz (227 g) portions of heated product, sprinkled with Baco's as a garnish.

MACARONI, CHEESE AND TOMATO CASSEROLE

Meat Substitute

Ingredients

Dairy Foods and Eggs

1. Cheese, cheddar, natural - NSN-8910-00-125-8440, Grade A, Fed. C-C-271, Class 2, Style F, Size 6.
2. Milk, homogenized - NSN-8910-00-584-6435, Fed. C-M-001678, Type I, Class 1.

Fruits and Vegetables

3. Onions, dehydrated, white, minced - NSN-8915-00-293-4170, Fed. JJJ-O-1866, Type 1, Style 4.
4. Tomatoes, canned, whole - NSN-8915-00-221-0361, US Grade A, Fed. JJJ-V-1746/20, Type 1.

Bakery and Cereal Products

5. Flour, wheat, general purpose - NSN-8920-00-140-7748, Fed. N-F-00481, Type III, Class B, Style 2.
6. Macaroni, elbow form - NSN-8920-00-782-2979, Fed. N-M-51. Group 1, Type A, Class 2, Style a, form 11.

Sugar, Confectionery, and Nuts

7. Sugar - NSN-8925-00-127-3073, Fed. JJJ-S-791, Type I, Class A.

Food Oils and Fats

8. Margarine - NSN-8945-00-616-0078, Fed. EE-M-0045, Type I.

Condiments and Related Products

9. Pepper, white, ground - NSN-8950-00-245-2302, Fed. EE-S-631, Type II.
10. Salt - NSN-8950-00-262-8886, Fed. SS-S-31.

Special Procurement

11. Baco's (imitation bacon bits)
12. Starch, Col-Flo 67.

MUSHROOM CHEESE FONDUE

Meat Substitute

Each Portion

Fondue 5 oz (142 g)
Bread Cubes 3/4 oz (21 g)

Ingredients	Percent	100 Portions		Volume (liquids)	10 Portions	
		Pounds	Grams		Weight	Measure
1. Bread, Italian, sliced	16.31	6.70	3039		11 oz	
2. Cheese, American	13.95	5.73	2599		9 oz	
3. Mushrooms, canned, drained	11.51	4.73	2146			1 1/2 cup
Milk, homogenized	4.00	1.64	744	3 cup		1/3 cup
4. Margarine	1.68	0.69	313			6 2/3 tsp
Flour, wheat, general purpose	0.83	0.34	154			5 tsp
5. Onions, fresh, diced	2.34	0.96	435			1/4 cup
6. Milk, homogenized	42.57	17.49	7933	2 gal		3 1/4 cup
Mushrooms, canned, drained	3.82	1.57	712			1/2 cup
Cheese, Parmesan, grated	0.46	0.19	86			3 2/3 tsp
Steak sauce	0.46	0.19	86	5 tbsp		1 1/2 tsp
Salt, table, iodized	0.37	0.15	68			1 1/8 tsp
7. Starch, Col-Flo 67	1.70	0.70	318			1/4 cup
TOTALS	100.00	41.08	18,633			
			35			

MUSHROOM CHEESE FONDUE

Meat Substitute

PROCEDURE:

- 1a. Cut sliced Italian bread into approximately 1-inch square pieces.
 - b. Place bread squares on sheet pans and toast in a convection oven at 325°F (163°C) for approximately 5 minutes or until surfaces are crisp.
 - c. Hold at room temperature, approximately 70°F (21°C) and reserve for step 7g.
- 2a. Cut American cheese into small pieces.
 - b. Reserve for step 6a.
- 3a. Combine ingredients listed in section 3 of ingredient listing in a blender (Waring or equivalent).
 - b. Mix until homogenous in appearance.
 - c. Reserve for step 6a.
- 4a. Melt margarine.
 - b. Make a roux with flour.
- 5a. Add diced onions from section 5 of ingredients listing to above.
 - b. Heat until onions are lightly browned.
- 6a. Add ingredients listed in section 6 of ingredients listing with cheese from step 2b and mushroom puree from step 3c to above, reserving some milk for step 7a.
 - b. Gradually heat to 160°F (71°C) to melt cheese, stirring constantly.
- 7a. Make a starch slurry with milk reserved from step 6a.
 - b. Add to above and heat to 180°F (82°C).
 - c. Add back water to maintain formula weight or volume.
 - d. Cool to about 50°F (10°C).
 - e. Place 5 oz (142 g) of mushroom fondue in individual containers.
 - f. Place a sheet of parchment over fondue in each container.
 - g. Place 3/4 oz (21 g) of toasted bread squares on parchment.
 - h. Cover, label, and freeze.

MUSHROOM CHEESE FONDUE

Meat Substitute

NOTES:

1. Formula includes a 10% overrun. Theoretical yield for 100 portions: 110 servings. Theoretical yield for 10 portions: 11 servings.

2. Toasted bread squares are based on a 77% yield. Weight of toasted bread squares for 100 portions should be approximately 5.2 lb (2.4 kg).

3. Final weight for 100 servings excluding bread squares is 34.4 lb (15.6 kg). Final volume for 100 servings excluding bread squares is 4.1 gal (15.5 L). One gallon (3.8 L) weighs 8.3 lb (3.8 kg).

4. To serve without freezing follow directions through step 7c. Serve 5 oz (142 g) of heated mushroom fondue along with 3/4 oz (21 g) of toasted bread squares.

MUSHROOM CHEESE FONDUE

Meat Substitute

Ingredients

Dairy Foods and Eggs

1. Cheese, American, processed - NSN-8910-00-082-6205, Fed. C-C-291, Type I, Style C.
2. Cheese, grated, Parmesan - NSN-8910-00-782-3765, Fed. C-C-285, Type I, Class 1.
3. Milk, homogenized - NSN-8910-00-584-6435, Fed. C-M-001678, Type I, Class 1.

Fruits and Vegetables

4. Mushrooms, canned - NSN-8915-00-935-6629, Fed. JJJ-V-1746/9, Type II, Style E.
5. Onions, dry - NSN-8915-00-616-0200, Fed. JJJ-V-1744/40.

Bakery and Cereal Products

6. Flour, wheat, general purpose - NSN-8920-00-140-7748, Fed. N-F-00481, Type III, Class B, Style 2.

Food Oils and Fats

7. Margarine - NSN-8945-00-616-0078, Fed. EE-M-0045, Type I.

Condiments and Related Products

8. Salt - NSN-8950-00-262-8886, Fed. SS-S-31.

Special Procurement

9. Bread, Italian, sliced.
10. Starch, Col-Flo 67.
11. Steak Sauce.

NOCHETOS

Meat Substitute

Each Portion

8 oz (227 g)

Ingredients	Percent	100 Portions		Volume (liquids)	10 Portions	
		Pounds	Grams		Weight	Measure
1. Lasagna, noodles	9.50	4.77	2164		8 oz	
2. Cheese, cheddar	15.00	7.53	3416		12 oz	
3. Margarine	1.86	0.93	422			3 tbsp
Flour, wheat, general purpose	1.82	0.91	413			1/4 cup
4. Milk, homogenized	47.65	23.95	10,864	2 3/4 gal		4 1/2 cup
Tomato paste	14.27	7.17	3252	3 1/3 qt		1 1/3 cup
Cheese, Parmesan	2.48	1.24	562			1/2 cup
Sugar	0.90	0.45	204			4 1/3 tsp
Salt, table, iodized	0.42	0.21	95			1 2/3 tsp
Oregano, ground	0.06	0.03	14			3/4 tsp
Garlic, granulated	0.03	0.02	9			1/4 tsp
5. Water	4.00	2.02	916	1 qt		1/3 cup
Starch, Col-Flo 67	2.00	1.00	454			1/3 cup
TOTALS	100.00	50.23	22,785			

NOCHETOS

Meat Substitute

PROCEDURE:

- 1a. Cook lasagna noodles in excess water until tender.
- b. Drain and cool to about 50°F (10°C) and reserve for step 5e.
2. Cut cheddar cheese into small pieces and reserve for step 4a.
- 3a. Melt margarine.
- b. Make a roux with flour.
- 4a. Add ingredients listed in section 4 of ingredients listing with cheese from step 2 to roux.
- b. Gradually heat to 160°F (71°C) to melt cheese, stirring constantly.
- 5a. Using ingredients listed in section 5 of ingredients listing make a starch slurry.
- b. Add slurry to above and heat to 180°F (82°C).
- c. Add back water to maintain formula weight or volume.
- d. Cool sauce to about 50°F (10°C).
- e. Alternate the filling of 1.39 oz (39 g) of cooked lasagna noodles from step 1b with 6.61 oz (187 g) of sauce from step 5d in each individual container.
- f. Cover, label, and freeze.

NOCHETOS

Meat Substitute

NOTES:

1. Formula includes a 10% overrun. Theoretical yield for 100 portions: 110 servings. Theoretical yield for 10 portions: 11 servings.

2. Formula is based on a twofold increase in lasagna noodles. Cooked weight of lasagna noodles for 100 portions should be approximately 9.5 lb (4327 g). Total weight of product using cooked lasagna noodles is 55 lb (24.9 kg).

3. Finished volume of sauce excluding lasagna noodles (100 portions) is 5 gallons (45.5 lb). One gallon of sauce weighs 9 lb.

4. To serve without freezing, follow directions through step 5c. Do not cool sauce. Alternate filling in pans 17% (by weight) cooked lasagna noodles with 83% (by weight) sauce. Heat in convection oven at 325°F (163°C) for approximately 15 minutes to an internal temperature of 160°F (82°C).

NOCHETOS

Meat Substitute

Ingredients

Dairy Foods and Eggs

1. Cheese, cheddar, natural - NSN-8910-00-125-8440, Grade A, Fed. C-C-271, Class 2, Style F, Size 6.
2. Cheese, grated, Parmesan - NSN-8910-00-616-0160, Fed. C-C-285, Type I, Class 1.
3. Milk, homogenized - NSN-8910-00-584-6435, Fed. C-M-001678 (Army GS), Type I, Class 1.

Fruits and Vegetables

4. Garlic, dehydrated - NSN-8915-00-616-5465, Fed. JJJ-O-1866, Type II.
5. Tomato paste - NSN-8915-00-582-4058, Fed. JJJ-V-1746/22, Type I, concentration d, Texture 1.

Bakery and Cereal Products

6. Flour, wheat, general purpose - NSN-8920-00-140-7748, Fed. N-F-481, Type III, Class B, Style 2.
7. Lasagna (noodles) - NSN-8920-00-782-2129, Fed. N-M-51, Group IV, Type A, Class 2, Style a, Form Vi.

Sugar, Confectionery, and Nuts

8. Sugar - NSN-8925-00-127-3073, Fed. JJJ-S-791, Type I, Class (a).

Food Oils and Fats

9. Margarine - NSN-8945-00-616-0078, Fed. E-E-M-0045, Type I.

Condiments and Related Products

10. Oregano, ground - NSN-8950-00-582-1402, Fed. EE-S-631, Type II.
11. Salt - NSN-8950-00-262-8886, Fed. SS-S-31.

Special Procurement

12. Starch, Col-Flo 67.

Meat Substitute

8 oz (227 g)

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RICE AND CHEESE CASSEROLE

Meat Substitute

PROCEDURE:

- 1a. Cook rice in excess water until tender.
- b. Drain and cool to about 50°F (10°C).
- c. Reserve for step 4e.
- 2a. Cut American Cheese into small pieces.
- b. Reserve for step 3.
- 3a. Combine ingredients listed in section 3 of ingredients listing with cheese from step 2.
- b. Gradually heat to 160°F (71°C) to melt cheese, stirring constantly.
- 4a. Using ingredients listed in section 4 of ingredients listing, make a starch slurry.
- b. Add slurry to above and heat to 180°F (82°C).
- c. Add back water to maintain formula weight or volume.
- d. Cool sauce to about 50°F (10°C).
- e. Add rice from step 1c to above and mix gently.
- f. Place 7 1/3 oz (206 g) of rice and cheese casserole in each individual container.
- g. Reserve for step 5c.
- 5a. Melt butter.
- b. Add bread crumbs and garlic powder to melted butter and mix until well blended.
- c. Top each individual container from step 4g with 0.6 oz (18 g) buttered bread crumbs.
- d. Cover, label, and freeze.

RICE AND CHEESE CASSEROLE

Meat Substitute

NOTES:

1. Formula includes a 10% overrun. Theoretical yield for 100 portions: 110 servings. Theoretical yield for 10 portions: 11 servings.

2. Formula is based on a threefold increase in rice. Cooked weight of rice for 100 portions should be approximately 12.2 lb (6.6 kg). Total weight of product for 100 portions including cooked rice is 55 lb (24.9 kg).

3. Final weight of sauce for 100 servings is 38.4 lb (17.4 kg). Final volume for 100 servings is 4.3 gal (16.2 L). One gallon (3.8 L) weighs 9.1 lb (4.0 kg).

4. To serve without freezing, follow directions through step 5b, but do not cool sauce. Place 93% (by weight) of rice and cheese casserole in pans and top with 7% (by weight) of buttered, garlic bread crumbs. Heat in convection oven for approximately 15 minutes to an internal temperature of 160°F (71°C) or until bread crumbs are browned. Serve 8 oz (227 g) portions.

RICE AND CHEESE CASSEROLE

Meat Substitute

Ingredients

Dairy Foods and Eggs

1. Butter - NSN-8910-00-616-0038, 1 lb print, Fed. C-B-801, Style B, Class 1.
2. Cheese, American, Processed - NSN-8910-00-082-6205, Fed. C-C-291, Type I, Style C.
3. Eggs, whole, frozen - NSN-8910-00-616-0051, Fed. C-E-00230, Type II, Kind a, Class 1.
4. Milk, homogenized - NSN-8910-00-584-6435, Fed. C-M-001678, Type I, Class 1.

Fruits and Vegetables

5. Garlic, dehydrated, granulated - NSN-8915-00-149-1571, Fed. JJJ-O-1866, Type II.

Bakery and Cereal Products

6. Bread Crumbs - NSN-8920-00-464-2224, MIL-F-3501, Type III.
7. Rice, parboiled - NSN-8920-00-782-2980, U.S. No. 1 Grade, Fed. N-R-00351, Class 1.

Condiments and Related Products

8. Salt, table, iodized - NSN-8950-00-262-8886, Fed. SS-S-31.
9. Worcestershire Sauce - NSN-8950-00-082-6177, Fed. EE-W-600.

Special Procurement

10. Chives, frozen, diced.
11. Starch, Col-Flo 67.

SPANISH OMELET WITH CREOLE SAUCE

Meat Substitute

Each Portion

8 oz (227 g)

Ingredients	Percent	100 Portions		Volume (liquids)	10 Portions	
		Pounds	Grams		Weight	Measure
1. Eggs, frozen, whole	37.80	23.98	10,877	2 3/4 gal	2 lb 6 oz	4 3/4 cup
2. Milk, homogenized	37.06	23.52	10,669	2 3/4 gal		4 1/3 cup
Onions, fresh, chopped	0.78	0.49	222			7 tsp
Olives, black, chopped	0.47	0.30	136			4 1/2 tsp
Peppers, green, frozen, chopped	0.47	0.30	136			4 1/2 tsp
Salt, table, iodized	0.16	0.10	45			3/4 tsp
Garlic, granulated	0.02	0.01	4			1/8 tsp
3. Starch, Col-Flo 67	1.57	1.00	454			1/3 cup
4. Tomatoes, canned in heavy puree	11.458	7.27	3298			1 1/3 cup
Celery, fresh, diced	2.05	1.30	590			1/3 cup
Mushrooms, canned, pieces, drained	1.54	0.98	444			1/4 cup
Peppers, green, frozen, chopped	1.29	0.82	372			1/4 cup
Sugar	0.41	0.26	118			2 1/2 tsp
Onions, dehydrated, chopped	0.21	0.13	59			1 tbsp
Juice, lemon, reconstituted	0.21	0.13	59	1/4 cup		1 1/4 tsp

SPANISH OMELET WITH CREOLE SAUCE (Continued)

Meat Substitute

Each Portion

8 oz (227 g)

Ingredients	Percent	100 Portions		Volume (liquids)	10 Portions	
		Pounds	Grams		Weight	Measure
1. Salt	0.20	0.12	54			1 tsp
Garlic, powdered	0.024	0.02	9			1/4 tsp
Bay, ground	0.01	0.006	3			1/8 tsp
Allspice, ground	0.01	0.006	3			1/8 tsp
Hot sauce	0.004	0.002	1			1/8 tsp
Pepper, cayenne	0.004	0.002	1			1/8 tsp (pinch)
5. Water	3.56	2.264	1027	4 1/2 cup		1/2 cup
Starch, Col-Flo 67	0.34	0.22	100			3 1/2 tsp
Flour, wheat, general purpose	0.26	0.16	72			2 1/3 tsp
6. Liquid smoke, C-3	0.09	0.06	27	2 tbsp		1/2 tsp
TOTALS	100.00	63.45	28,779			

SPANISH OMELET WITH CREOLE SAUCE

Meat Substitute

PROCEDURE:

Omelet Preparation

1. Beat eggs until whites and yolks are well blended.
- 2a. Add ingredients listed in section 2 of ingredients listing to above, reserving some milk for step 3.
 - b. Mix well.
- 3a. Make a starch slurry with milk reserved from step 2a.
 - b. Add to above, and mix well.
 - c. Spray half-size steam table pans lightly with vegetable coating agent.
 - d. Pour 2.7 lb (1225 g) of omelet mix into half-size steam table pans.
 - e. Cook in convection oven at 325°F (162°C) for approximately 20 minutes to an internal temperature of 170°F (77°C).
 - f. Cool to about 50°F (10°C).
 - g. Cut into 6 oz (170 g) portions and place one portion in each individual container.
 - h. Reserve for step 6e.

Sauce Preparation

- 4a. Combine ingredients listed in section 4 of ingredients listing.
 - b. Mix well.
 - c. Heat to 160°F (71°C).
- 5a. Using ingredients listed in section 5 of ingredients listing make a slurry.
 - b. Add to above and heat to 180°F (82°C).
- 6a. Add liquid smoke, listed in section 6 of ingredients listing to above.
 - b. Mix well.

SPANISH OMELET WITH CREOLE SAUCE

Meat Substitute

PROCEDURE: (Cont'd)

- 6c. Add back water to maintain formula weight or volume.
- d. Cool to about 50°F (10°C).
- e. Pour 2 oz (57 g) of sauce over omelet in each individual container from step 3h.
- f. Cover, label, and freeze.

NOTES:

- 1. Formula includes a 10% overrun. Theoretical yield for 100 portions: 110 servings. Theoretical yield for 10 portions: 11 servings.
- 2. Formula is based on an 83% yield from raw to cooked omelet. Weight of cooked omelet for 100 portions should be approximately 41.2 lb (18.7 kg).
- 3. Final weight of sauce for 100 servings is 13.8 lb (6.2 kg). Final volume of sauce for 100 servings is 1.6 gal (6.0 L). One gallon (3.8 L) weighs 8.7 lb (3.9 kg).
- 4. To serve without freezing, do not cool omelet or sauce. Ladle 2 oz (57 g) of hot sauce over 6 oz (170 g) of hot omelet.

SPANISH OMELET WITH CREOLE SAUCE

Meat Substitute

Ingredients

Dairy Foods and Eggs

1. Eggs, whole frozen - NSN-8910-00-616-0051, Fed. C-E-00230, Type II, Kind a, Class 1.

2. Milk, homogenized - NSN-8910-00-584-6435, Fed. C-M-001678, Type I, Class 1.

Fruits and Vegetables

3. Celery, fresh - NSN-8915-00-926-4925, Fed. HHH-V-1744/12.

4. Garlic, dehydrated, - NSN-8915-00-616-5465, Fed. JJJ-O-1866, Type II.

5. Juice, lemon, frozen - NSN-8915-00-411-2676, MIL-J-11174.

6. Mushrooms, canned - NSN-8915-00-935-6629, Fed. JJJ-V-1746/9, Type II, Style E.

7. Onions, dehydrated, chopped - NSN-8915-00-128-1179, Fed. JJJ-O-1866, Type I, Style 4.

8. Onions, dry - NSN-8915-00-616-0200, Fed. HHH-V-1744/40.

9. Peppers, sweet, frozen, green - NSN-8915-00-081-0856, Fed. HHH-V-1745/15, Type I, Style E.

Bakery and Cereal Products

10. Flour, wheat, general purpose - NSN-8920-00-140-7748, Fed. N-F-00481, Type III, Class B, Style 2.

Sugar, Confectionery, and Nuts

11. Sugar - NSN-8925-00-127-3073, Fed. JJJ-S-791, Type I, Class (a).

Condiments and Related Products

12. Allspice, ground - NSN-8950-00-170-9562, Fed. EE-S-631, Type II.

13. Hot sauce - NSN-8950-00-926-9939, MIL-H-35021.

14. Olives, ripe, pitted, sliced - NSN-8950-00-450-0016, Fed. Y-O-451, Type II, Style E.

SPANISH OMELET WITH CREOLE SAUCE

Meat Substitute

Ingredients (Cont'd)

15. Salt, table, iodized - NSN-8950-00-262-8886, Fed. SS-S-31.

Special Procurement

16. Bay ground.
17. Liquid smoke, Char-sol C-3.
18. Pepper, cayenne, ground.
19. Starch, Col-Flo 67.
20. Tomatoes, canned, in heavy puree.

Meat Substitute

4 squares 3.3 oz (94 g)

53

TOASTED CREAM CHEESE SQUARES

Meat Substitute

PROCEDURE:

1. Slice cream cheese into approximately $1\frac{1}{2}$ x $1\frac{1}{4}$ x $\frac{3}{4}$ inch "squares" ($\frac{3}{4}$ oz or 21 g).
- 2a. Beat eggs to make egg wash.
- b. Dip cream cheese squares from step 1 in wash.
- 3a. Combine ingredients listed in section 3 of ingredients listing in a separate container. Mix until well blended.
- b. Dredge each cream cheese square from step 2(b) in breading mix.
- c. Place squares on sheet pans and bake in a convection oven at 300°F (149°C) to an internal temperature of 160°F (71°C), for approximately 15 minutes.
- d. Cool to about 50°F (10°C).
- e. Place 4 cream cheese squares (approximately 3.3 oz (94 g) in each individual container.
- f. Cover, label, and freeze.

NOTES:

1. Formula includes a 10% overrun. Theoretical yield for 100 portions: 110 servings. Theoretical yield for 10 portions: 11 servings.
2. Formula is based on 91% yield of cream cheese squares. Cooked weight of breaded squares should be approximately 22.6 lb (10,251 g).
3. To serve without freezing, follow directions through step 3c and serve four hot cream cheese squares per portion.

TOASTED CREAM CHEESE SQUARES

Meat Substitute

Ingredients

Fruits and Vegetables

1. Garlic, dehydrated, granulated - NSN-8915-00-616-5465, Fed. JJJ-O-1866, Type II.

Dairy Food and Eggs

2. Cheese, cream - NSN-8910-00-383-7910.
3. Cheese, grated, parmesan - NSN-8910-00-616-0160, Fed. C-C-285, Type I, Class I.
4. Eggs, whole, frozen - NSN-8910-00-616-0051, Fed. C-E-00230, Type II, Kind a, Class 1.

Bakery and Cereal Products

5. Bread crumbs - NSN-8920-00-464-2224, MIL-F-3501.

Condiments and Related Products

6. Paprika, ground - NSN-8950-00-170-9563, Fed. EE-S-631.
7. Salt - NSN-8950-00-262-8886, Fed. SS-S-31.

VEGETABLE CHEESE FONDUE

Meat Substitute

Each Portion

Fondue 5 oz (142 g)
Bread cubes 3/4 oz (21 g)

Ingredients	Percent	100 Portions		Volume (liquids)	10 Portions	
		Pounds	Grams		Weight	Measure
1. Bread, Italian, sliced	16.31	6.70	3039		11 oz	
2. Cheese, Swiss	13.21	5.427	2462		9 oz	
3. Margarine	0.83	0.34	154			3 1/4 tsp
Flour, wheat, general purpose	0.63	0.26	118			3 3/4 tsp
4. Celery, fresh, diced	4.89	2.01	912			2/3 cup
Onions, fresh, diced	4.89	2.01	912			2/3 cup
Peppers, frozen, diced	0.83	0.34	154			4 3/4 tsp
5. Milk, homogenized	46.40	19.06	8646	2 1/4 gal		3 1/2 cup
Steak sauce	0.83	0.34	154	1/2 cup		1 tbsp
Salt, table, iodized	0.63	0.26	118			2 tsp
Sugar	0.63	0.26	118			2 1/2 tsp
Paprika	0.05	0.02	9			1/3 tsp
Garlic, granu- lated	0.023	0.01	4			1/8 tsp
Pepper, white, ground	0.007	0.003	1			1/8 tsp (pinch)
6. Starch, Col-Flo 67	1.05	0.43	195			6 3/4 tsp
		56				

Meat Substitute (Cont'd)

Each Portion
oz (g)

Ingredients	Percent	100 Portions		Volume (liquids)	10 Portions	
		Pounds	Grams		Weight	Measure
7. Corn, whole, kernel, frozen	7.52	3.09	1402			1 cup
Sherry flavoring	1.27	0.52	236	1 cup		5 tsp
TOTALS	100.00	41.08	18,634			

VEGETABLE CHEESE FONDUE

Meat Substitute

PROCEDURE:

- 1a. Cut sliced Italian bread into approximately 1-inch-square pieces.
- b. Place bread squares on sheet pans and toast in convection oven at 325°F (163°C) for approximately 5 minutes or until surfaces are crisp.
- c. Hold at room temperature, approximately 70°F (21°C) and reserve for step 7g.
- 2a. Cut Swiss cheese into small pieces.
- b. Reserve for step 5a.
- 3a. Melt margarine.
- b. Make a roux with flour.
- 4a. Add ingredients listed in Section 4 of ingredients listing to above.
- b. Heat until vegetables are lightly browned.
- 5a. Add ingredients listed in section 5 of ingredients listing with cheese from step 2b to above, reserving some milk for step 6a.
- b. Gradually heat to 160°F (71°C) to melt cheese, stirring constantly.
- 6a. Make a starch slurry with milk reserved from step 5a.
- b. Add to above and heat to 180°F (82°C).
- 7a. Add ingredients listed in section 7d of ingredients listing to above.
- b. Mix well.
- c. Add back water to maintain formula weight or volume.
- d. Cool to about 50°F (10°C).
- e. Place 5 oz (142 g) of vegetable cheese fondue in individual containers.
- f. Place a sheet of parchment over fondue in each container.
- g. Place 3/4 oz (21 g) of toasted bread squares on parchment.
- h. Cover, label, and freeze.

VEGETABLE CHEESE FONDUE

Meat Substitute

NOTES:

1. Formula includes a 10% overrun. Theoretical yield for 100 portions: 110 servings. Theoretical yield for 10 portions: 11 servings.

2. Toasted bread squares are based on a 77% yield. Weight of toasted bread squares for 100 portions should be approximately 5.2 lb (2.4 kg).

3. Final weight for 100 servings, excluding bread squares, is 34.4 lb (15.6 kg). Final volume for 100 servings excluding bread squares is 4.0 gal (15.1 L). One gallon (3.8 L) weighs 8.6 lb (3.9 kg).

4. To serve without freezing, follow directions through step 7c. Serve 5 oz (142 g) of heated vegetable fondue with 3/4 oz (21 g) of toasted bread squares.

VEGETABLE CHEESE FONDUE

Meat Substitute

Ingredients

Dairy Foods and Eggs

1. Cheese, Swiss, natural - NSN-8910-00-450-9839, Fed. C-C-302, Style (b).
2. Milk, homogenized - NSN-8910-00-584-6435, Fed. C-M-001678, Type 1, Class 1.

Fruits and Vegetables

3. Celery, fresh - NSN-8915-00-926-4925, Fed. HHH-V-1744/12.
4. Corn, frozen, whole kernel - NSN-8915-00-082-5599, US Grade A, Fed. HHH-V-1745/8, Style 1, Color (a).
5. Garlic, dehydrated, granulated - NSN-8915-00-616-5465, Fed. JJJ-O-1866, Type II.
6. Onions, dry - NSN-8915-00-616-0200, Fed. HHH-V-1744/40.
7. Peppers, sweet, frozen, green, diced - NSN-8915-00-081-0856, Fed. HHH-V-1745/15, Type I, Style E.

Bakery and Cereal Products

8. Flour, wheat, all purpose - NSN-8920-00-140-7748, Fed. N-F-481, Type III, Class B, Style 2.

Sugar, Confectionery, and Nuts

9. Sugar - NSN-8925-00-127-3073, Fed. JJJ-S-791, Type I, Class (a).

Food Oils and Fats

10. Margarine - NSN-8945-00-616-0078, Fed. EE-M-0045, Type I.

Condiments and Related Products

11. Paprika, ground - NSN-8950-00-170-9563, Fed. EE-S-631.
12. Pepper, white, ground - NSN-8950-00-245-2302, Fed. EE-S-631, Type II.
13. Salt, table, iodized - NSN-8950-00-262-8886, Fed. SS-S-31.

VEGETABLE CHEESE FONDUE

Meat Substitute

Ingredients (Cont'd)

Special Procurement

14. Bread, Italian, sliced.
15. Sherry flavoring.
16. Starch, Col-Flo 67.
17. Steak sauce.

WESTERN OMELET

Meat Substitute

Each Portion

6 oz (170 g)

Ingredients	Percent	100 Portions		Volume (liquids)	10 Portions	
		Pounds	Grams		Weight	Measure
1. Eggs, frozen, whole	42.91	19.89	9022	2 1/3 gal	2 lb	4 cup
2. Cheese, American	3.00	1.39	630		2 oz	
3. Margarine	1.00	0.46	209			4 1/2 tsp
Flour, wheat, general purpose	1.00	0.46	209			6 3/4 tsp
4. Milk, homogenized	26.78	12.41	5629	5 3/4 qt		2 1/3 cup
Tomato paste	7.65	3.55	1610	1 2/3 qt		2/3 cup
Mushrooms, canned drained	5.50	2.55	1157			3/4 cup
Worcestershire sauce	1.00	0.46	209	1 cup		4 1/2 tsp
Salt, table, iodized	0.50	0.23	104			1 3/4 tsp
Sugar	0.10	0.05	23			1/2 tsp
Garlic, granulated	0.04	0.02	9			1/4 tsp
Pepper, white, ground	0.02	0.01	4			1/8 tsp
5. Onions, fresh, diced, 1/4 in.	5.00	2.32	1052			2/3 cup
Peppers, green, fresh, diced, 1/4 in.	4.25	1.97	894			2/3 cup
6. Starch Col-Flo 67	1.25	0.58	263			3 tbsp
TOTALS	100.00	46.35	21,024	62		

WESTERN OMELET

Meat Substitute

PROCEDURE:

1. Beat eggs until whites and yolks are well blended and reserve for step 5a.
2. Cut American cheese into small pieces and reserve for step 4a.
- 3a. Melt margarine.
- b. Make a roux with flour.
- 4a. Add ingredients listed in section 4 of ingredient listing with cheese from step 2 to above. Reserve some milk for step 6a.
- b. Gradually heat to 160°F (71°C) to melt cheese, stirring constantly.
- c. Remove from heat.
- 5a. Add ingredients listed in section 5 of ingredient listing with eggs from step 1 to above.
- b. Mix well.
- 6a. Using the ingredients in section 6, make a slurry with the milk reserved from step 4a.
- b. Add to above and mix until well blended.
- c. Add back water to maintain formula weight or volume.
- d. Spray half-size steam table pans lightly with vegetable shortening.
- e. Pour 2.5 lb (1134 g) of omelet mix into half-size steam table pans.
- f. Place half-size steam table pans in convection oven at 325°F (162°C) and bake for approximately 30 minutes to an internal temperature of 200°F (93°C).
- g. Cool to about 50°F (10°C).
- h. Cut into 6 oz (170 g) portions and place one portion in each individual container.
- i. Cover, label, and freeze.

WESTERN OMELET

Meat Substitute

NOTES:

1. Formula includes 10% overrun. Theoretical yield for 100 portions: 110 servings. Theoretical yield for 10 portions: 10 servings.
2. Formula is based on an 89% yield from raw to cooked omelet. Weight of cooked omelet for 100 portions should be approximately 41.2 lb (18.7 kg).
3. Final weight of 100 servings is 46.35 lb (21.0 kg). Final volume of 100 servings is 5.4 gal (20.4 L). One gallon (3.9 L) weighs (8.5 lb) (3.8 kg).
4. To serve without freezing, follow directions through step 6f. Cut into 6 oz (170 g) portions and serve hot.

WESTERN OMELET
Meat Substitute

Ingredients

Dairy Foods and Eggs

1. Cheese, American, processed - NSN-8910-00-082-6205, Fed. C-C-291, Type I, Style C.
2. Eggs, whole, frozen - NSN-8910-00-616-0051, Fed. C-E-00230, Type II, Kind A, Class 1.
3. Milk, homogenized - NSN-8910-00-584-6435, Fed. C-M-001678, Type I, Class 1.

Fruits and Vegetables

4. Garlic, dehydrated, granulated - NSN-8915-00-616-5465, Fed. JJJ-O-1866, Type II.
5. Mushrooms, canned - NSN-8915-00-935-6629, Fed. JJJ-V-1746/9, Type II, Style E.
6. Onions, dry - NSN-8915-00-616-0200, Fed. HHH-V-1744/40.
7. Peppers, sweet, fresh, green - NSN-8915-00-127-8006, Fed. HHH-V-1744/28, U.S. No. 1 Grade.
8. Tomato paste - NSN-8915-00-582-4058, Fed. JJJ-V-1746/23, Type I, concentration d, texture 1.

Bakery and Cereal Products

9. Flour, wheat, general purpose - NSN-8920-00-140-7748, Fed. N-F-481, Type III, Class B, Style 2.

Sugar, Confectionery, and Nuts

10. Sugar, NSN-8925-00-127-3073, Fed. JJJ-S-791, Type I, Class a.

Food Oils and Fats

11. Margarine - NSN-8945-00-616-0078, Fed. E-E-M-0045, Type I.

Condiments and Related Products

12. Pepper, white, ground - NSN-8950-00-245-2302, Fed. EE-S-631, Type II.
13. Salt - NSN-8950-00-262-8886, Fed. SS-S-31.
14. Worcestershire sauce - NSN-8950-00-082-6177, Fed. EE-W-600.

WESTERN OMELET
Meat Substitute

Ingredients (Cont'd)

Special Procurement

15. Starch, Col-Flo 67.

TABLE 1

SENSORY EVALUATION OF MEAT SUBSTITUTE ENTREES

	<u>Recipe Number</u>	<u>Page Number</u>	<u>Color</u>	<u>Odor</u>	<u>Flavor</u>	<u>Texture</u>	<u>Appearance</u>
Bows Supreme	MS-1	10	7.1*	7.1	7.1	7.0	7.2
Cheese Strata	MS-2	14	7.4	7.0	7.0	6.7	7.3
Chinese Omelet	MS-3	18	6.7	6.9	6.8	6.7	6.6
Corn & Cheese Casserole	MS-4	22	7.1	7.1	7.1	6.9	7.1
Creole Eggs	MS-5	26	6.8	6.7	6.3	6.8	6.8
Macaroni, Cheese and Tomato Casserile	MS-6	31	7.1	7.2	6.9	7.3	7.2
Mushroom Cheese Fondue	MS-7	35	7.1	7.2	7.5	7.1	7.1
Nochetos	MS-8	39	7.0	7.2	7.2	7.3	7.1
Rice and Cheese Casserole	MS-9	43	6.9	7.2	7.4	6.8	7.1
Spanish Omelet with Creole Sauce	MS-10	47	7.3	7.2	7.0	7.2	7.3
Toasted Cream Cheese Squares	MS-11	53	7.2	7.0	7.0	6.8	7.2
Vegetable Cheese Fondue	MS-12	56	7.0	7.0	6.9	6.7	6.9
Western Omelet	MS-13	62	6.3	7.2	7.0	7.0	6.5

* Based on a 9-point scale in which 1= extremely poor, 9= excellent

TABLE 2

NUTRITIONAL ANALYSIS OF EAT SUBSTITUTE ENTREES

Edible Portion Serving Size (g)	Cal Serving	H ₂ O g/serving	Protein g/serving	Fat g/serving	Ash g/serving	Carbohydrate g/serving	Salt g/serving	Cu mg/serving	P mg/serving	Fe mg/serving	Na mg/serving	K mg/serving	Mg mg/serving
Bone Supreme	227	265	173	12.0	12.8	3.7	25.5	349	266	2.0	912	175	31
Cheese Strata	142	356	79	17.2	24.0	3.9	17.9	525	471	1.3	941	230	23
Chinese Omelet	170	225	128	14.1	13.6	2.8	11.5	351	287	2.2	554	238	21
Corn and Cheese Casserole	227	327	163	14.0	16.4	2.9	30.9	323	393	1.4	574	207	33
Creole Eggs	198	151	165	11.9	5.8	2.5	12.8	67	158	5.1	556	386	22
Macaroni, Cheese and Tomato													
Casserole	227	278	170	11.5	11.8	2.8	31.4	301	222	2.7	573	216	38
Mushroom Cheese Fondue	163	250	115	11.7	14.5	3.7	18.1	400	344	0.8	978	165	23
Mochitos	227	368	153	16.8	17.7	4.1	35.4	601	338	2.0	640	449	43
Rice and Cheese Casserole	227	469	140	21.7	29.0	6.0	30.3	630	602	1.8	1553	150	29
Spanish Omelet with Creole Sauce	227	218	184	14.5	11.6	3.1	13.8	189	275	0.9	656	445	25
Toasted Cream Cheese Squares	94	346	45	7.9	31.3	1.7	8.1	110	120	0.6	488	86	9
Vegetable Cheese Fondue	163	249	112	13.4	17.8	3.4	22.4	470	297	0.6	740	435	31
Western Omelet	170	234	125	16.0	13.3	3.2	12.5	183	291	2.6	678	445	26

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