

ARMY RATIONS

In the past the common soldier was not fed by his unit, but was left to fend and forage for himself. When an army was in the area, the local population suffered greatly. Their homes were ransacked and anything of food value was stolen along with all edible livestock. Modern armies go to great lengths to insure their soldiers are supplied with sufficient nutritious meals to keep them fit and ready to complete their mission.

Military Field Rations. The object of military field rations is to provide plenty of nutrients in as light a weight as possible. When hot mess hall meals are not available, soldiers are issued field rations which can be quickly and easily prepared in the field. In training situations, most United States military units try to provide at least one hot meal per day and issue MRE's (Meals Ready to Eat) for the others. MRE's aren't much different in content from Vietnam War era C-Rations, but are packed in lightweight plastic and foil pouches instead of heavy tin cans and some foods like fruits and vegetables have been freeze dried to save even more weight. MRE's are balanced nutritionally and there is a certain variety of menus (so long as you don't get the same type for every meal), but are thought by many soldiers to be very bland. Troops often carry hot sauce and spices like seasoned salt, cayenne pepper, garlic or curry powder and some also bring cheese, dry salami, minute rice (a clean boot sock is good for carrying some extra rice) or ramen noodles to the field to improve or supplement the issued meal. MRE's generally consist of a main-course (like beef stew, barbecued beef slices or chicken a la king), a freeze dried fruit or vegetable snack (like peaches, strawberries or hash brown potatoes, which can be reconstituted with water or eaten dry and crunchy), dense crackers and some kind of spread (like peanut butter or cheese whiz), a dessert (like chocolate or cookies), a drink mix (like kool-aid or cocoa), salt, pepper, instant coffee, creamer, sugar, chewing gum, matches and toilet paper. Other modern armies issue similar rations, but usually with canned food. The French Army even includes a small plastic bottle of red wine in their field rations.

British Army Rations. After the fall of France to the Nazis, a booklet on guerrilla warfare was distributed to the British Home Army, their citizen's Militia, advising how to resist the expected invasion of their island nation. Concerning rations this booklet stated that, in a pinch, a half-pound of chocolate and a half-pound of raisins should suffice to sustain a soldier in the field for a week. Try that some time if you want to lose about ten pounds. The British Army today has a much better field diet in the form of a 24-hour "ratpack" (ration pack) thought by many other armies to be the best in the world. It's useful to examine the contents of the British ratpack when planning and assembling your own rations for Militia field duty. Each ratpack weighs about 4-1/2 pounds, comes in a cardboard box with a range card printed on the side and is issued with a folding stove and hexamine solid fuel tablets or a stereo type jellied fuel cooker. There is a menu card showing the suggested breakdown for a breakfast, snack and main meal. The meal plan for the ratpack is not very different from the meals consumed by many backpackers; a quick, easy to prepare breakfast, high carbohydrate snacks eaten throughout the day's activities, and a more hearty main meal. Breakfast consists of a rolled oats porridge mix, a can of bacon grill or bacon burger (which can be eaten cold or fried), brown biscuits (plain dense cookie/crackers not unlike hardtack with some sugar) and powdered cocoa. The snack is placed

in uniform pockets or an equipment belt pouch (never in an ammo pouch; in a firefight, reaching for a magazine and coming up with a chocolate bar can get you seriously killed). The snack is consumed throughout the day as desired and as the mission allows. It consists of more brown biscuits, a small tin of meat spread (chicken, ham, beef, or chicken & bacon), a milk chocolate bar, a roll of hard flavored sugar candy, chocolate covered caramels and lemon or orange flavored dextrose (glucose) tablets. There are four different main meal menus, all in cans; chicken curry, steak & kidney pudding, steak & onion casserole and minced steak. The main meal also has fruit filled biscuits, instant soup, a side dish (mixed vegetable, pre-cooked minute rice, spaghetti in tomato sauce or beans in tomato sauce) and a fruit dessert (instant apple flakes, apple & apricot flakes, fruit salad or mixed fruit pudding). The 24-hour ratpack also contains six 25-gram sugar packets, four tea bags and several one-cup serving instant drink packets (four dried skim milk powder, two coffee, one beef stock and one orange or lemon drink powder) and sundries (chewing gum, toilet paper, salt, book matches, windproof & waterproof matches, water purification tablets and a P-38 type folding can opener). Where possible, fresh rations are issued to supplement the ratpack, but it provides a balanced diet of excellent quality and has enough calories and vitamins to keep a soldier going on all but the most arduous tasks.

Food for Energy. To perform your mission in combat, you need to give your body all the calories and nutrients it needs. To hump your rucksack up a mountain or keep warm on a cold day, your body needs to burn up lots of digestible food. Whether you are assaulting a hill or lying perfectly still in your sleeping bag, your body is constantly expending energy. The energy intake supplied by food is measured in units of heat energy called calories. A pound of cheese contains about 1,800 calories; a pound of margarine 3,300 calories. An individual performing the heavy exercise common to outdoor activities in a tactical environment requires 3,200 to 4,500 calories per day. In cold weather, more calories are required to keep the body warm. Rations for the average person should be planned to provide about 3,700 calories a day in the summer and 4,250 calories in the winter. Calories, however, measure only the heat energy in food. It would not be adequate, or appetizing, for a soldier in winter to consume the required 4,250 calories by eating a pound of margarine and half a pound of cheese. In order to put together a ration plan for Militia field duty which will encourage the body's efficiency, you must also consider the type of calorie you will be consuming.

Most of the calories you need in the field can be provided by carbohydrates, the starches and sugars which should make up about half of your daily ration. Pasta, flour, rice, potatoes, dried fruit, cocoa, pudding, dried milk, powdered eggs, nuts, honey and brown sugar are excellent sources of carbohydrates, and are the backbone of a good field ration. While some carbohydrates, such as pure sugars, assimilate into the body within fifteen minutes of ingestion, which is ideal for an instant pick-me-up on a patrol, others, such as the starch in pasta, take up to four hours to assimilate. That's fine; the extra time allows you to produce energy to warm you through the night or to fuel a long march. It should be noted that the nutritive quality of carbohydrates can be seriously affected by processing and refining. Whenever possible, include whole-grain and unprocessed foodstuffs in your rations.

Fats are a more concentrated form of energy and a more complex form of food than carbohydrates, so it usually takes the body from two to nine hours to metabolize them. One gram

of fat produces nine calories of heat energy (more than twice as much as carbohydrates or proteins). While fats do not provide the instant vigor that carbohydrates can, they are a good long-term energy source to keep you hiking all day and warm all night. Fats will be providing energy to your body after carbohydrates eaten at the same time have been used up. Twenty-five percent of your daily caloric intake in the field should be fats. During the winter a higher intake, closer to forty percent, is recommended, since fats play such an important role in making your body less sensitive to the cold (now you know why blubber is such an important part of the traditional Alaskan Native American diet). However, fats require a good blood supply in the stomach for digestion. They are likely to be unappetizing, and even nauseating under circumstances when circulation is poor, like at high altitudes or when you are very cold, dehydrated and exhausted. If you don't have a problem digesting fats in cold weather and if you have a tendency to get cold in the middle of the night, put a spoonful of margarine in your cocoa before going to bed. Your sleeping bag doesn't warm you up, you warm it up and its insulation keeps your body heat from escaping. You can create body heat either by metabolizing food or by shivering; your choice. Other good sources of fats are cheese, coconut, bacon, salami, nuts and peanut butter.

Protein is the raw material which most of the body's cells require to keep on living. If more protein is consumed than the body needs for building and maintaining tissues, it is burned for energy. The protein in our bodies is made up of twenty-two chemical substances called amino acids. These amino acids can be arranged in a great number of formations, and each structure forms a different protein that serves the body in a different manner. All amino acids used by the body come from food. If some needed amino acids are not present in the diet, the body can break down other amino acids and manufacture the required type. However, there are eight amino acids which the body cannot manufacture called essential amino acids, which must be obtained through the protein in the food we eat. Some foods, such as meats, poultry, fish, eggs and milk products furnish all eight essential amino acids and are called "complete proteins." Other foods, such as beans, peas, lentils, peanuts, cereals, vegetables and fruits contain some, but not all, of the eight essential amino acids and are called "incomplete proteins." Most of the complete protein foods are not very handy for use in the field because of weight or spoilage, so learning the proper combination of incomplete proteins is an important part of field nutrition. When considering how to combine incomplete proteins to create complete proteins, try to include foods from at least two of the following groups, either in a single meal or over the course of a day: whole grains (rice, flour, pasta), dairy products (milk, cheese), legumes (beans, peanuts, lentils), and seeds (sesame, sunflower, pumpkin). The most complimentary protein relationships are between milk products and grains; grains and legumes; and legumes and seeds. Tortillas with beans, rice with nuts, or the cornbread and beans diet of the Confederate soldier are all examples of combining incomplete proteins to create complete proteins. Even foods having complete proteins can be nutritionally enhanced through combination. If the protein in one food is relatively low in an essential amino acid, it can be combined with a food that is particularly high in that amino acid. In this way, essential amino acids present in the diet will be in closer proportion to the body's requirements for them, thus increasing the usability of the proteins you eat. Fish combined with rice, a diet which feeds much of the world's population, is an example of this process.

If your field rations contain a balanced variety of carbohydrates, proteins and fats, you will probably ingest an adequate supply of vitamins and minerals for a short bivouac. For an extended stay in the field you might consider supplementing your diet with vitamins, particularly vitamin C. If supplemental vitamins are a regular part of your diet at home, it is probably best to include them in your field rations.

Drinking an adequate amount of water aids in the digestion of foods, keeps cells healthy, regulates body temperature and helps carry wastes out of the body. Strenuous activity and high altitude usually increase the amount of water lost from the body through sweating. In cold weather, you can also lose about two quarts of liquid per day through respiration. Dehydration can make you susceptible to hypothermia, frostbite, mountain sickness, heat stroke and many other problems. In the summer you should drink a minimum of two or three quarts of water per day (strenuous activity in the desert sun can cause a fluid loss of close to one gallon per hour). In the winter a minimum of three or four quarts are essential. The easiest way to insure you replace enough fluids is to drink liquids at all meals and drink water whenever you are thirsty. Even if you are not thirsty, it is important to drink water at all rest stops throughout the day. When moving through areas where potable drinking water is in short supply, plan ahead and carry an adequate amount with you. Keeping track of your urine output is a good way to make sure you are getting enough water. You should be urinating at least two or three times a day. The urine should be clear and light unless there is a specific reason for color change, such as taking vitamin B supplements, which can turn the urine a darker yellow. Many people have a tendency to drink their morning coffee and then hit the trail. Keep in mind that coffee and tea are diuretics and can cause dehydration. Before you move out, drink a full cup of water after your coffee to get off to a good start.

Good nutrition is the first criterion for selecting rations for a stay in the field. A nutritionally balanced diet will begin with whole grains, dairy products, legumes and seeds. It should also include some meats or meat substitutes, fruits and vegetables, and sweets. The chart in the next column provides a guideline for a nutritionally balanced summer ration (increase fats to 40 percent in winter):

Percentage (by weight; not including non-nutritive food items such as coffee, tea, salt and spices) of total rations in each major food group:

Meat or meat substitutes 11%
Dried meats, eggs, soy products (3%)
Nuts, seeds, legumes (8%)

Dairy products 18%
Powdered milk and milk drinks (10%)
Cheese (8%)

Fruit and vegetables 13%
Dried vegetable, potatoes (7%)
Dried fruit (6%)

Grains and grain products 33%
Flour, biscuit mix, cake mix (11%)
Cereals, wheat germ, granola (11%)
Pasta, rice, barley, etc. (11%)

Margarine and oils 8%

Sweets 17%
Sugar and honey (8%)
Fruit drinks, Jell-O, puddings (9%)

Field Ration Planning. The Militia training manual "Citizen Soldier" by Robert Bradley recommends a five-day field ration of three one-quart Nalgene plastic bottles (one each of minute rice, macaroni and instant mashed potatoes), a small bottle of salt, some spices, a medium bottle of Tang and a plastic bottle of squeeze margarine, supplemented with some vitamins, canned tuna, candy bars, instant cocoa, coffee or tea. This plan is certainly better than the half-pound each of chocolate and raisins recommended to the British Home Army during World War II, but you can do better with the food selection techniques used in modern lightweight backpacking which are described in the next section.

Field ration planning begins with the idea that in the backcountry, you should eat whenever you are hungry throughout the day. Snack foods that you can munch on while on the move or during breaks (lunch is often just a longer trail break), such as nuts, granola, hard candy and cheese, should be a part of your field rations. These foods provide a handy source of quick energy when you are hiking and are also a quick solution for cold or hunger in the middle of the night. Extra trail foods also make a good emergency food reserve. If you are planning rations for a group, you might have each individual be responsible for their own trail food to account for personal preferences and body needs; some people like and perform better with cheese and dried meat snacks, others with nuts and granola. Rather than planning rigid menus for each meal, include in a ration a wide variety of ingredients which provide good nutrition and allow for choice at each meal. If you experience a craving for a certain type of food, your body could be telling you it needs a particular nutrient (or it might just mean that you like pepperoni pizza). Basic foodstuffs combined with a little creativity are the ingredients for good backcountry eating.

For a weekend bivouac in the field, rations can be informal; just toss a few big cans of beef stew or chili into your rucksack (Nalley even makes them in camouflaged cans sold during hunting season). You should, however, include a good supply of food that yields a high amount

of energy, like cheese or macaroni, which you can probably find in your refrigerator or pantry. For longer stays in the field, particularly with groups of four or more, rationing can require considerable planning.

Like most outdoor skills, it may seem painstaking and time-consuming the first time, but after you have done it once and begin to understand your needs, the process will become quite easy.

There are six important criteria which, when combined with an understanding of good nutrition, can help you determine the right food to take to the field:

1. **Your Mission.** The major activities you anticipate during your mission should influence your choice of foods. If you will need to do a lot of mountaineering and cover a lot of miles, you want foods that can be prepared quickly. Energy content will be important, so pack snack foods to give yourself extra energy for long days. Don't count on running across edible wild vegetation, game or fish in your area of operations, but certainly supplement your rations if the opportunity arises and time and the mission allows.

2. **Weight.** Food is a major part of the weight of your rucksack. Your rations should weigh about 1-1/2 to 2-1/4 pounds per person per day in the summer and 2-1/4 to 2-1/2 pounds in the winter. Eight to ten days supply of food is about as much as you can carry comfortably along with your weapon, ammo and other mission essential equipment. This assumes that much of the food will be dehydrated or dry staples like rice or pasta. If water will be in short supply and you need to carry canned food and extra water, the ration you can carry won't last as long. Freeze dried foods, in which only 2 to 3 percent of the moisture remains are lighter than dried foods, which often contain a full 25 percent of their original moisture. However, the freeze-drying process often removes some of the nutritional value of the food and freeze dried foods are much more expensive. Freeze drying does not alter the cell structure of food like other drying processes, so it retains its original shape and bulk. For example, you can pack more shriveled up dried apples in your rucksack than the equivalent amount of freeze-dried apples which stay their original size. To keep weight down, never carry food in glass bottles (which are also unsafe) and avoid canned foods or select those in aluminum cans like some meat spreads and Vienna sausage. To save weight and eliminate unnecessary bulk, discard original packaging (save the instructions) and place dried foods in zip-lock plastic bags. Freezer bags are stronger than sandwich bags and should be used with items like spaghetti which can puncture a weak bag. Carry spices and liquids in reusable plastic bottles. Bags and liquid containers can spring leaks, so pack liquid containers or several small bags of food in large freezer bags and also carry a few extra bags. Peanut butter, syrups and honey can be carried in backpacker's reusable squeeze tubes and many can now be found on the grocery store shelf in plastic packaging.

3. **Spoilage.** Because of the risk of spoilage, most meats and fresh foods should be excluded from summer rations. If you carry all dried goods, it's nice to throw in a couple of onions or potatoes, which will keep for three or four days (to reduce spoilage, use a brown paper bag and do not wash fresh vegetables before packing). Margarine or vegetable oil must replace butter on longer stays in the field in the summer. Fresh eggs can be broken into a plastic jar with a tight sealing lid and they will pour out one at a time. Fresh eggs broken into a backpacker's reusable squeeze tube will come out of the spout one at a time. They will keep up to four days if kept cool; carry the container in the center of your rucksack wrapped in clothing and immerse them in a stream when in camp. Plastic camping type egg carriers aren't sturdy enough for fresh eggs, but can be used for hard-boiled eggs; keep these cool also and use on the first few days in the field. Store-wrapped meat packages can be safely taken from your freezer, wrapped in some

newspaper and packed in a brown paper bag for consumption on the first day of a mission, but freeze-dried meats, jerky or hard salami are the only practical form of carrying meat for more than one day in the field.

4. **Availability and Expense.** The best way to insure good, nutritious meals and keep your expenses down is to avoid freeze dried foods, which can be 3 to 6 times more expensive than buying ingredients for cooking from scratch. The more box dinners, commercially-mixed drinks and store-bought granola you use, the higher your food bill and the lower the nutritional value will be. If you are rationing for large groups, buy directly from granaries, dairies or wholesale stores. When including freeze-dried foods in your rations, try to buy in bulk directly from an outlet rather than from retail distributors. Investing in a food dryer is a good way to cut down on the cost of dried vegetables and fruit (get one with both heat and circulating air). Most of the foods you should carry to the field are common staples which you can find in a large supermarket.

5. **Variety.** The more you know about your group's normal eating habits, the better you can plan their field rations. Include various types of food: trail foods, baking goods, spices for flavoring sauces and instant foods for rushed meals. Take along a few special ingredients and surprise your companions.

6. **Preparations.** When planning rations, consider the circumstances under which you will cook. What cooking tools will you be taking? Will you be using a stove or an open fire? If you will be cooking entirely on a butane or multifuel backpacking stove, most of your meals will most likely be cooked in one pot and baking will be very limited. If you only have a pocket stove and solid fuel tablets, your rations will have to be limited to reheating already cooked food in cans or pouches (like MRE's or vacuum sealed cooking bags) or freeze-dried foods. In cold weather, avoid foods that need to cook a long time or require a lot of pot handling or intricate use of knives or fingers, since you will probably be wearing heavy gloves or mittens.

The following sample represents a summer ration plan for ten days for two people at 2 pounds per person per day, and can be used as a guide when planning your field rations:

Tea, 10 bags; or coffee, 1/2 lb.

Margarine, 3 lbs.

Powdered milk, 2 lbs.

Cocoa, 2 lbs.

Raisins, 1 lb.

Dried figs, 1 lb.

Dried coconut, 1/2 lb.

Dried peaches, 1/2 lb.

Shelled peanuts, 1 lb.

Toasted soybeans, 1/2 lb.

Roasted almonds, 1 lb.

Sesame seeds, 1/4 lb.

Sunflower seeds, 1 lb.

Cheddar cheese, 3 lbs.

Monterey jack cheese, 3 lbs.

Gingerbread mix, 1/2 lb.

Grappenuts, 2 lbs.

Oatmeal, 1/2 lb.
Wheat cereal, 1/2 lb.
Granola, 1 lb.
Instant hash browns, 2 lbs.
Instant fruit drink, 1 lb.
Brown sugar, 1 lb.
Macaroni, 1 lb.
Spaghetti, 1 lb.
White rice, 1 lb.
Brown rice, 1/2 lb.
Instant potatoes, 1/2 lb.
Pinto beans, 1 lb.
Barley, 1/2 lb.
Tortillas, 1 lb.
Flour, 2-1/2 lbs.
Cornmeal, 1/2 lb.
Soup mixes, 3/4 lb.
Dried vegetables, 1/2 lb.
Popcorn, 1/4 lb.
Baking powder, 1/4 lb.
Yeast, 1/4 lb.
Seasonings: Tabasco, salt, pepper, cayenne, oregano, garlic salt, dry mustard, nutmeg, cinnamon, onion salt, curry powder, chili powder, flavoring extracts.

Total weight: 40-3/4 lbs. or 20-3/8 lbs. per person

Buying, Packing & Preparing Foods. Generally the foodstuffs you carry in your rucksack should be packed in plastic bags or bottles. A vacuum sealing device can greatly reduce the bulk of some foods and help preserve them.

Meats: On a long mission, meat, due to its cost and weight, will usually be a luxury used only for flavoring. For a short stay in the field, there are a variety of suitable meat products, including compressed meat bars, freeze dried meats (ground beef is useful with Hamburger Helper type pasta main-course dishes) and dry sausages that do not require refrigeration. Homemade meat jerky is inexpensive and simple to make. Small cans of Vienna sausage, tuna, sardines, cooked boned meats (chicken, turkey, ham, etc.), corned beef or various meat spreads are also good on short missions. Canned meats with a high fat content like corned beef or tuna packed in vegetable oil will lessen the amount of margarine required when added to rice or pasta dishes. Even on a longer mission a small amount of canned meats should be packed. They can be eaten cold when circumstances don't permit cooking.

Soybean Products: The protein in soybeans is fairly similar to that found in meat. In addition to roasted soybeans, which make good trail food and provide interesting texture for many cooked meals, you can buy soy flour (useful for its nutty flavor) for baking or thickening stews or making gravy (most gravy mixes are little more than meat flavoring, salt and flour). Soy-derivative products such as "ham" and "bacon" bits can add flavor to omelets and rice and bean dishes.

Dried Eggs: Powdered eggs are available as whole eggs, or white and yolks separately. Quality varies considerably from brand to brand, so it is wise to experiment at home before relying on them in the field.

Nuts and Seeds: Shelled nuts are more convenient for backcountry cooking. Nuts make good trail food and add taste and texture to baked goods. To save money, buy unroasted nuts and roast them yourself.

Legumes: Dried legumes (split peas, lentils, beans, etc.) when combined with brown rice or other grains make a complete protein, and can add variety to a meal. They generally take a long time to cook unless you use a pressure cooker or you prepare quick-cooking beans (by pre-cooking and then drying them for field use). Quick cooking beans are available in at some backpacking stores, but are much more expensive than dried beans. Bean and pea flours make good soup bases or thickeners if you can find them (or grind your own); most are now sold as soup mixes.

Dry Milk: Several types of powdered milk are available: instant whole milk, instant nonfat milk, regular whole milk and buttermilk. Whole milk has more calories and vitamins than nonfat milk and is a better additive for baked goods. Instant powders dissolve more easily in cold water. A wide variety of breakfast drinks with milk bases are also easy to find in most grocery stores.

Cocoa: It's easier to use the instant type cocoa, which has already been combined with powdered milk. In the field all you have to do is add hot (not boiling) water.

Cheese: Sharp cheddar seems to be the cheese with the most versatile flavor for backcountry cooking. It also keeps better than many other cheeses. Hard cheeses like Parmesan and Romano are also good in the field, as are processed cheese snacks (leave the type with a heavy can full of air at home).

Margarine: Butter spoils rapidly in summer in the field, so margarine should be carried. Use a plastic squeeze bottle or remove the wrappers from sticks and carry them in a wide mouth screw-top plastic jar (the lids on tubs of soft spread margarine aren't secure enough).

Dried Fruit: Dried fruit (such as apples, prunes, raisins, apricots and peaches) can be found in any supermarket or you can dry them yourself. They make good trail food eaten as they are or added to breads. They can be stewed and eaten in cereals or for dessert at suppertime (you can cook some extra to be eaten cold the next morning). Dried fruit retains about 25 percent of its moisture and is thus heavier to carry than the considerably more expensive freeze-dried fruit, which has less than 3 percent moisture content. Sulfur-dried fruit, which must be soaked before using, contain more vitamins and minerals than other dried fruit.

When properly packaged and stored below 60 degrees, most home dried fruit will maintain good quality for at least one year. Fruit packed in vacuum sealed bags lasts three to four times longer and for every 18 degrees drop in temperature, shelf life also increases three to four times.

Dried Vegetables: Vegetables add color, vitamins and minerals to any meal. You can purchase freeze-dried or dry your own. Home dried vegetables don't keep as well as dried fruit because they are low in acid and sugar. If possible, they should be refrigerated or frozen. Ideally dried vegetables should be used in less than six months when stored at 60 degrees (some vegetables like squash and cucumber should be used within two weeks). Dried green peas, onions and flaked cabbage are good for stews or soups. Carrots, green beans, beets and corn are

also good, but take somewhat longer to cook. Flaked green peppers and onions make good seasonings and can be added to almost anything. Tomato flakes mix with water to make paste, sauce or juice, and are one of the best flavorings for outdoor cooking.

Potatoes: Potatoes come in flake or powdered form and can be used as a separate dish, an additive or a thickener. Though potato flakes lose much of their vitamin C when processed, they are a versatile food for field cooking. Along with plain potatoes you might also carry a variety of packaged flavored types with sauce mixes. Throw away the original packaging and re-pack (along with the right proportion of dry milk if the recipe requires milk) in plastic bags or bottles labeled with cooking instructions.

Self-Rising Baking Dishes: For simplicity and weight, it's important to buy mixes which do not require the addition of eggs and shortening. Biscuit mixes can also be used to make cakes and pancakes. A few special mixes, such as gingerbread, cake mixes or special flours make a good change of pace for a long stay in the field.

Wheat Germ: Wheat germ is used primarily as a nutritional supplement for cooking. Roasted wheat germ will keep for up to a month without refrigeration.

Cereals: Oat and wheat cereals are nutritionally superior to rice and barley cereals. Bulgur wheat (also called "ala"), a whole grain product that cooks rapidly enough for field use, can be found in the hot cereal section of some supermarkets or in health food stores (which sometimes also stock other quick-cooking grains). It is wheat which has been pre-cooked, dried and cracked; cook and use it like rice. While uncooked cereals are the most versatile and can be used for hot cereal, granola and baking, the instant cereals are much easier to cook, usually taking less than a third of the time. While it is usually the best practice to carry foodstuffs consolidated in zip-lock bags and measure out portions, you might want to carry several different flavors of instant hot breakfast cereals in single serving packs for convenience and to add variety.

Pasta: Pasta can form a major part of your field diet (whole grain pastas are nutritionally superior). Noodles of various shapes and kinds make an excellent start for one-pot meals. They cook in about 8-minutes of boiling (frequent stirring keeps them from sticking) and are quite nourishing, since they are generally made with egg as well as flour. However, don't make the mistake some hungry backpackers have made of counting on ramen noodles as a complete main-course (most have less than 200 calories). Ramen noodles can supplement MRE's or form the basis of a one-pot meal to which you add meat and vegetables. Packaged macaroni and cheese can also be made into a complete main-course by using the "15-Minute Dinner Ideas" found on a Kraft box. Prepare the macaroni and cheese normally and then stir in a half pound each of cooked meat and cooked vegetables with some spices or extra ingredients. Some combinations suggested by Kraft are: ground beef, stewed tomatoes & 1-tsp. chili powder; chicken, broccoli & 2-tsp. mustard; tuna, peas, 1/4-tsp. Italian seasoning; Italian sausage, broccoli, 1/4-cup chopped red pepper. You might also consider the ease of preparation and flavor variety of Hamburger Helper or Noodle Roni type main-course pasta dishes. A variety of sauce mixes (like Stroganoff, Fettucine Alfredo or broccoli and mushroom sauce) can add a welcome change to a monotonous field diet. Discard the original packaging and consolidate the pasta from all the boxes into a single container. Empty the sauce mix packets into separate bags for each type (along with instant dry milk if the recipe requires milk). With a permanent (not water soluble) marking pen, write preparation instructions on the bag or an enclosed slip of paper. Write instructions both for

single servings and for the number of portions that will fit in a large cooking pot shared between 3 or 4 people. Carry a small plastic drinking/measuring cup and a set of plastic measuring spoons (not necessarily the whole set, just what you need) to measure out the required number of portions.

Rice, Barley, Buckwheat, Grits: These are handy staples for preparing many good dishes, from cereals to main-courses (like with potatoes and pasta, sauce mixes can conveniently add variety). The instant forms are less nutritious, but are much easier to cook. A lightweight aluminum backpacking type pressure cooker reduces the cooking time required for these staples, and is the only practical way of cooking brown rice (which takes twice as long as regular long grain rice) over a single-burner backpacking stove.

Soup Bases and Instant Soup: In addition to making a quick cup of soup, powdered bases and bouillon are also useful as flavorings for many dishes. When using them, remember that most bases contain a considerable amount of salt; use them cautiously. Don't carry single servings of instant soup; consolidate them into separate zip-lock bags for each type. Instant pea soup mixes are filling and a good source of protein, especially if rice, noodles or some other grain is included in the meal.

Sweeteners: Brown sugar is more versatile to use and easier to pack than white (put a piece of apple in the container to keep it soft). Honey, molasses, syrups and jam should be placed in plastic jars or bottles with tight-fitting lids (for extra protection, pack them inside a plastic bag).

Fruit Drinks: Instant fruit drinks and gelatin desserts are good to drink either hot or cold (nothing beats a hot cup of Jell-O with a little margarine for sleeping warm). Get mixes with vitamin C and sugar already added. More expensive artificially sweetened drinks don't have the nutritional value of sugar, but weigh less (lemonade or lemon flavored ice tea mix with Nutrasweet is good prepared half-strength to mask the taste of iodine after using water purification tablets).

Instant Desserts: Instant puddings and cheesecake can be packed in small zip-lock freezer bags (with dry milk if the recipe requires). To prepare just add cold water, mix it in the bag, chill in a cold stream if available, and then eat right from the bag.

Candy: If you choose to eat candy, make it in addition to an already nutritious diet. Fruit candies are more practical and offer a greater variety than chocolates. Nut candies are nutritionally superior.

Spices: A good spice kit can make the difference between superb cuisine and bland, monotonous meals in the field. A good basic selection includes salt (carry extra, which you will need if you are perspiring heavily), pepper, cayenne pepper, cinnamon, nutmeg, dill, curry, oregano, sage, chili powder, cumin, onion powder and garlic. Tabasco sauce, salsa, soy sauce and worcestershire sauce can also add a dash of interest to a simple meal. Spices are best carried

in small plastic bottles or covered shakers with a few grains of rice to absorb moisture. Flip-top lids are available to convert plastic 35mm film cans into handy salt and pepper shakers.

Adjusting Rations for High Altitude and Cold Weather. The higher the altitude, the less oxygen is available to metabolize food. Complex molecules such as proteins and fats may be harder to digest under these conditions. Fats can still be a very important source of concentrated, long-lasting energy, and some people are not bothered at all by digestive problems at high altitude. Take it easy the first time out, and if they give you no difficulties, then keep high energy fats in your rations and even increase them to about 40 percent of your diet. High altitude increases cooking time, which will roughly double for every 6,000 feet. At 15,000 feet water boils at 184 degrees and will not get hotter without a pressure cooker. At 11,000 feet fresh carrots can sit in a boiling stew pot for hours and all you end up with are hot, raw crunchy carrots. A meal that takes thirty minutes to cook at sea level is not practical at high altitudes. Frying is not much affected by high altitude.

Cold dry air absorbs water from the lungs and the body loses fluids with every breath (visible or not). Extra soup and drink mixes should be added to your rations for cold weather or high altitude. Taking additional liquids will increase your blood volume, which aids digestion and helps prevent frostbite and hypothermia. Coffee and other diuretics should be used in moderation because they prevent the body from absorbing water and dehydration may result. An adequate supply of water is top priority in cold weather, even though it may be more difficult to find. Snow must be melted slowly over a low flame or it will taste scorched and be undrinkable. If you have to melt solid snow, place a bit of water in the bottom of your pot and stir constantly. Snow can also be melted in a porous cloth bag suspended over a container near a fire (no closer than you can comfortably stand indefinitely). After each meal, melt an extra pot of water and fill water bottles. A warm water bottle wrapped in a mitten or wool sock helps to keep your feet warm while you sleep. Have both food and water available at night; thirst and hunger are the major reasons people sleep cold. A high-fat, high-protein recipe to munch on and keep warm is the "Iron Man Mix"; one part each of raisins, cubed non processed cheese, peanuts and diced beef jerky. On snowy peaks during the summer, you can use the sun to melt drinking water. If you are spending the day in camp, put a dark colored tarp or rain parka in a hollow in the snow. Then place a small amount of snow in the tarp and continue adding snow as it melts. The sun's energy will melt large amounts of water fairly quickly.

Personal Field Cooking Equipment. During the Revolutionary War, meals in the field were cooked over open fires in cast iron pots (one for every six to twelve men; the officer's pots had lids). Each soldier carried a canteen, a tin plate or wooden bowl, and a wooden or pewter spoon. Seasoned veterans carried big spoons so they could eat fast and get seconds from the pot before they ran out. As a modern day Minuteman, how you equip yourself for field cooking depends upon your personal experience and the mission. At a minimum you should have an individual mess kit (GI or a commercial nesting set), a canteen and canteen cup, a large spoon (GI mess kit type or heavy duty lexan plastic), a P-38 type folding can opener, and a pocketknife. You should also have a folding pocket stove (the British Army type is best; carry plenty of band-aids if you get a cheap Taiwan copy with loads of sharp corners) or a canteen cup stand with solid fuel. Such a compact stove will allow you to warm a pre-cooked meal, cook individual servings and prepare hot beverages. Hexamine fuel tablets are relatively inexpensive in the camping sections of discount stores. The US military issues trioxane fuel bars, which can be found in surplus stores. Both types of solid fuel can also be used as tinder to get stubborn, damp

kindling started; trioxane is especially easy to ignite with a Gerber Strike Force emergency fire starting tool.

If you get a commercial mess kit, spend the extra money for stainless steel; aluminum camping mess kits are quite thin, so food scorches and burns easily. A good value in mess kits is the Stansport one-person stainless steel cook set (about \$17 at Bi-Mart), which has copper bottoms for quick and even heating, features fold-away stay cool handles, nests compactly into an included nylon case, and consists of an 8-ounce plastic drinking/measuring cup, a 3/4-quart pot with lid, a 1-quart pot with lid, and a 5-1/2 inch frying pan. In addition to the canteen on your belt, you may wish to carry dry staples (like rice, pasta or dried potatoes) in wide-mouth 1-quart polycarbonate plastic bottles (Nalgene and Reliance are popular brands; Reliance is considerably less expensive). When empty, they can be used as extra canteens or for soaking dried food in your rucksack while you're on the move (put dried food and water in the bottle at noon and it should be ready for cooking by evening meal time). You might also add an insulated plastic or stainless steel drinking mug, to prevent burning your lips and to keep beverages hot. A 2-quart or 5-quart GI bladder canteen can be useful for carrying water from a water source to your cooking area in camp.

Cooking Canned Rations. There are three basic methods for you to cook canned rations in a tactical environment. The least popular method is to open the can, empty the contents into your mess kit or canteen cup and heat it. It's after the meal that your problems begin; trying to clean your cooking gear, which you never seem to have the time or enough water to do. If you don't get it clean enough, you will wish that you had the next time you use it and then have to make an urgent "shovel recon" of the bushes. A cleaner cooking method is to pierce the lid twice and place the can half submerged in boiling water for 10 minutes. This is slow and uses a good deal of fuel and water, but is the method described in the British ration pack instructions and is the recommended method for heating MRE pouches in a canteen cup with a stand and solid fuel. Water used for heating cans becomes contaminated with zinc and should not be used for drinking purposes. The third method of heating canned rations is to make a shallow dent in the side of the can and place it on the stove. When the dent bulges out or resumes its normal shape, remove the can, holding it away from you pierce it to release the pressure, open it and eat the contents right from the can. Heat unopened cans slowly and remove them promptly when the dent bulges out or they might explode. An advantage of this heating method is that if you are attacked while cooking you just put the can in your pocket or rucksack (be careful, it will be hot) and continue to cook it whenever you have the time. Also, unlike the first two methods it produces no steam (visible over great distances in cold conditions) or cooking odors. When finished with canned rations, top and tail the cans (remove the lid and bottom), flatten, burn to remove food remnants, put them in plastic garbage bags and carry them with you. This process keeps down the amount of insects in camp and denies the enemy tactical intelligence from examining your unit's refuse pile.

Tactical Cooking Tips. Keep eating. Under training, and certainly under wartime conditions, you will reach a level of exhaustion where eating becomes a difficult chore. You must try anyway or you will very rapidly become a casualty. Be prepared to eat on the move. Break your rations own into various meals and stow them in your BDU (Battle Dress Uniform) pockets or rucksack here you or your buddy can get to them without taking off your gear. Never

cook for one. Use the buddy system so only one set of cooking gear needs to be unpacked and used. Take only what you immediately need out of your rucksack and put it away promptly in case you need to leave the area in a hurry. No cooking should be allowed while on an ambush or while in an LP (listening post) or OP (observation post). Cooking in a unit should be staggered. Cook in pairs and those cooking should still watch their fields of fire with their weapons close at hand. The odor of openly cooked food can give away your position.

Cooking in unopened cans gives off the least amount of odor of any cooking method. To keep your canteen cup clean (important for hygienic reasons), to avoid burning your lips and to reduce cooking odors, boil water in your canteen cup, remove it from the heat and prepare hot beverages in a plastic drinking cup (like a Rubbermaid mug or an extra M258 Decontamination Kit container). Spicy foods like curried chicken can be detected by the educated nose at 40 to 50 meters. Hexamine solid fuel stoves also have a very pungent and distinct odor. A butane stove burns hotter than solid fuel (less cooking time) and has less risk of compromising your position by smell, but make sure you use it at half-power since it can be noisy. Place sentries at the limit of smell or noise, whichever is the furthest. If you have to cook at night, conceal your stoves so no light is visible, but be aware that hexamine gives off noxious fumes and can be a hazard in an enclosed area like a bunker. Dig a shallow hole for your stove (a hexamine stove only needs a hole about 6 or 8 inches deep) and if you need to put the fire out in a hurry you can remove your mess kit or canteen cup and push the dirt back in the hole to extinguish the fuel block.

Equipping the Field Kitchen. In a base camp or secure rear area, you can make use of a more relaxed group style of cooking that would not be possible in a tactical environment. If you are sharing a larger cooking pot with 3 or 4 other people, you can use a sturdy plastic bowl to eat from; it will be easier to clean and keep food warmer longer than your individual mess kit. A butane or multifuel backpacking stove can also be shared. You can split up the load of food, stove, fuel and cooking equipment between several people, but insure that everybody has some ready-to-eat food. A well equipped set of group cooking equipment for a few people should include:

One large Teflon or Silverstone coated skillet with a lid and folding handle. This can also be used as a dutch oven for baking biscuits; place the pan on a bed of hot coals and place coals or build a twig fire on the lid.

Two large 2 to 3 quart pots; good for everything from boiling water to mixing and preparing stews or one-pot meals. Pot lids conserve heat and reduce the amount of fuel required for boiling water and cooking. Some lids can also be used for frying foods or as serving plates. A lightweight aluminum pressure cooker could substitute for one of the pots and greatly decrease fuel usage.

A folding pack grill for cooking over an open fire or hot coals.

A folding reflector oven for use with a fire, or a compact folding aluminum reflector oven, like the Outback Oven, which allows baking of items like bread, cobblers, casseroles, brownies and even pizza over a small backpacking stove.

Cotton gloves and pot grips or pliers, for safely handling pots over a fire.

One wooden spoon, a plastic or metal spatula, a small wire whisk (for thoroughly mixing powdered ingredients with liquids), a sturdy plastic measuring cup and a set of plastic measuring spoons.

A collapsible 2-1/2 gallon water jug or a pair of inflatable GI 5-quart canteens often will allow all the water for a meal or for washing cookware to be carried in one trip from the water source. If washing cookware with suspect, unpurified water, heat your pans over the fire or stove afterwards. A 2-1/2 gallon nylon water bag that only weighs 3-ounces and can fold into a shirt pocket is available through camping equipment outlets. Also available is a black plastic collapsible water carrier that heats water with solar energy and has a shower attachment; perfect for cooking water or for field hygiene purposes.

You may find a few other items of cooking equipment necessary depending upon the type of food being carried and your personal cooking style. For example, a plastic slotted spoon can be used for mixing baked goods, stirring a pot and draining pasta. Some cooks may insist a small flat cheese grater is essential. The only limit is the weight and bulk you can carry in your rucksack.

In a fixed camp or if you are vehicle mobile (or have pack animals) you can add more equipment to your field kitchen for group cooking:

Additional grills for open fire cooking (folding pack type or larger).

Additional cookware, like large stock pots (for cooking or for heating water for cleaning dishes) and cast iron skillets or dutch ovens are useful. Aluminum cookware is lightweight and relatively inexpensive, but is easy to burn food in and loses heat quickly. Although heavy, cast iron retains heat well and distributes it evenly. Enameled steel (good for stock pots and roasters) and stainless steel offer excellent compromises between aluminum and cast iron.

A 3 to 4 quart enameled steel coffee pot can be used for boiling water for everyone to use to prepare instant hot beverages, soups or hot breakfast cereals. In some units the soldier who makes the first pot of coffee before everyone rolls out of their "fart sacks" (sleeping bags) is considered to have the most important job of all. Instant coffee nowadays is very good (freeze dried crystals will even reconstitute in cold water, although it takes longer), but as the name implies, a coffee pot can even be used to make coffee. If not using instant coffee, bring the water to a rolling boil, dump in the proper measure of coffee, remove from heat, cover, set aside for a few minutes, then add a little cold water to settle the grounds.

Propane or multifuel two-burner camp stoves. Propane stoves are easier to use (some with electric spark ignition don't even require matches). About the only part that can wear out is the on/off valve, but the fuel is expensive and steel propane cylinders are heavy. Also, if both burners feed from the same cylinder, then the second burner doesn't receive as much pressure as the one closest to the fuel and will burn cooler. Multifuel stoves can burn either white gas (naphtha, Coleman fuel or lantern fuel) or unleaded gasoline; either fuel is cheaper than propane and easier to find a resupply. Multifuel stoves generally work better than propane in extremely cold temperatures, but exercise caution when refueling them; sub-zero temperature fuel on your skin can mean instant frostbite. New models don't require preheating or priming, have self-cleaning generators and some feature electronic ignition. Multifuel stoves burn hotter than propane and aren't as good for slow simmering of soups or stews. A Teflon coated aluminum griddle that fits over both burners is a useful accessory, as is the Outback reflector oven

Plastic jerry cans for water are handy. In an emergency, a jerry can can be strapped to a pack frame if it's necessary to carry water on foot to a remote site. Reliance brand 6-gallon (23-liter) jerry cans are sold at Wal-Mart and K-mart. A 10-quart galvanized pail is useful for both carrying and heating water.

Organizing the Field Kitchen. Organization is the first step to great outdoor cooking. Establish a distinct area for food preparation and another for cooking. In the food preparation area, keep your utensils in order. After you use something, put it back and you won't hear "Where's the salt?" or "Has anyone seen the spatula?" It's easy to lose small utensils at a campsite; if you don't set them down carefully they are likely to disappear. Once they are gone in the field, you can't just run out to the corner store for a replacement. Allow yourself 360 degrees of uncluttered space around the fire or stove. If your way around is blocked, you will be tempted to reach across the fire for a needed ingredient or utensil. With a campfire, you will want to move around to avoid the smoke as the wind changes. A simple rule is to have a five-foot clear area around a fire. In a cooking area you are particularly in danger of accidents. You could trip around a fire or stove and spill a scalding pot. At the least a meal could be ruined and at worst you could damage equipment or seriously burn yourself. A bad burn in the field, miles from medical attention, can even be a life threatening injury. Wear your boots around the fire and use pot grips or cotton gloves for picking up hot pots. Remove a pot from the fire when you add a new ingredient. This protects your hands and makes it less likely you will spill or waste food. Sparks from a fire can seriously damage nylon tents, ponchos, sleeping bags or rucksacks. Make sure such equipment is a good distance from your fire. Be careful when drying clothing around the fire, and do not dry boots in this fashion. Natural fibers like wool or cotton will smolder before igniting, but polyester or nylon blends (like the material used in GI field jackets and some BDU's) can burst into flame without warning. If a spot near the fire is too hot for you to hold your hand there indefinitely, it is too hot for any item of clothing. As you set up your field kitchen, remember to organize for convenience and safety.

Putting the Pot on the Fire. If using a stove, you should cook over a low to moderate flame. If you cook over a fire, the coals should be hot, but the fire controlled. Since a fire provides a larger cooking area, it also gives you more flexibility. You can arrange the fire so that one area is used for baking and another for cooking, or you can cook a main dish and make coffee at the same time. The first rule for backcountry culinary success is "avoid disaster." There are four likely disasters that a new outdoor cook should watch out for:

The first is burning. Always cook on low heat. Make sure there is enough water in the pot, and check often to see if more is needed. As your sauces begin to thicken, stir often. Always cook in a clean pot which has no old food stuck to the bottom. When baking, carefully regulating your heat source is particularly important. To prevent burning when using a covered skillet dutch oven style, it is important to check the temperature of the coals before placing a pan on them. Baked foods are more likely to burn on the bottom than on the top. Hold your hand about six inches above the coals; they should be hot, but you should be able to keep your hand in place for eight seconds. The coals and burning twigs you place on the lid should feel hotter than those on the bottom and should cover the entire lid. When baking, check the food and the coal temperature from time to time. If you are baking something prone to "falling," don't look in during the first five to ten minutes unless you smell something burning. Otherwise, when you check, remove the hot coals from the lid and look in quickly, trying to keep the cold air out. When you are finished checking, replace the coals on the lid. Replace coals as they cool off, both under and on top of the oven. Don't let a stove discourage you from baking. Use a low flame under the pan and build a small twig fire on the lid. Maintain constant temperatures under and over the pan, and you've got an oven environment for your favorite baked delicacy. Whether

baking a pie or cooking a chowder, you can avoid burning by paying constant attention to your fire or stove.

The second disaster is overspicing. Spices should be used creatively, but also experimented with cautiously, a little at a time. Add, stir, then taste. Let the flavor settle in fully before you decide to add a little more. Never add the spice directly from the bottle to the pot. Shake it into your hand first. An unexpected loose cap can turn a "hint" of spice into the main course. Be aware of the saltiness of flavor bases before adding salt. If you are cooking with a bouillon cube, remember you already have a good amount of salt in the dish.

The third disaster is lumpy food. Powders like flour or dried milk should be mixed with liquid before adding them to a dish or sprinkled a little at a time with constant stirring. With freeze-dried foods, let them boil for ten to fifteen minutes before adding other ingredients. Thickeners, such as milk or cheese, should always be added last.

The final disaster is overdone food. This disaster is more subtle, but can be avoided. Keep tasting as you are cooking, and remember, even after you pull a pot from the fire, it will continue to cook. It is better to err on the side of undercooking, which is easily correctable.

As with other military activities, to be a good field cook takes the right attitude; a combination of caution and boldness. Caution in thoroughly understanding the nutritional needs of your unit, and carefully planning well-thought-out field rations. Caution also in following new recipes step by step and using spices artfully, with moderation. Your confidence as an outdoor cook will grow quickly with a few successes because appetite is always working for you. Food tastes great after a hard day in the outdoors. Once you're properly equipped with field cooking gear and have learned how to prepare nutritious outdoor meals, you will be more ready to complete any Militia mission in the field.

Here are a few recipes to get you started as a field cook (although the Logan bread is easier to prepare at home and then eat on the trail):

Logan Bread

5 cups water
4 pounds whole wheat flour
1 pound soy flour
2-1/2 cups raw or dark brown sugar, firmly packed
1-1/4 tsp. baking powder
1-1/2 tsp. salt
1-1/2 cups honey
1-1/2 cups dark molasses
2 cups melted shortening

Mix all ingredients thoroughly. Do not use a weak spoon or try this when your arm is already feeling sore (this dough lets you know it's substantial food right from the start). It should be tough stuff; if it isn't, add some more flour. Flours do vary in the amount of liquid they absorb. When it's all mixed, bake it in 2-inch deep baking pans for an hour at 350 degrees. Cut it into 2-inch squares while it is still warm. Set the oven for warm, put the bread in to dry with the door left ajar, and leave it for 8 to 12 hours. Time depends upon temperature, humidity and your taste. The longer you leave it, the tougher it will get. As long as it is dried fairly well, it keeps for a long, long time. (Note: There are many recipes for this dense, hard trail bread. You can eat

Logan bread for breakfast or as a snack, just like the brown biscuits in the British Army ration pack.

Corned Beef and Cabbage (for one)

2 ounces dried flaked cabbage
2 ounces dried potato slices
1 ounce dried onions
2 to 4 tbsp. margarine
salt & pepper to taste
1/2 can (12-ounce size) corned beef

Put everything except the meat into 4 cups of boiling water, and cook until tender, around 15-minutes. Pour off excess water, dice the beef in and serve.

Dumpling Mix

1 cup flour
2 tbsp. soy flour
2 tbsp. dehydrated eggs
2 tbsp. dried milk
1-1/2 tsp. baking powder
1/2 tsp. salt
1 tbsp. shortening

Mix the ingredients at home, cutting in the shortening. In camp any amount you like can be mixed with enough water to make a soft dough. Then drop spoonfuls into the top of a cooking stew or soup, cover, and allow to cook 20-minutes. The same dough can be baked in a pan or twisted on a stick over a fire to make bannock (an unleavened riddlecake, usually made with oatmeal or barley).

Stew (for one)

4 ounces dried vegetables
4 ounces macaroni
2 ounces beef-flavored vegetable protein or freeze-dried ground beef
2 tbsp. soy flour
2 tbsp. margarine
1 tbsp. instant beef bouillon
salt, pepper, oregano, sage, garlic to taste

Drop everything into a quart of boiling water and cook until done, depending on the longest cooking vegetables.

Bulgur and Cheese (for one)

1 cup bulgur wheat
1 tbsp. dried minced onion
1 bouillon cube (2 if you like)
2 tbsp. margarine
1/4 pound cheddar cheese

2 tbsp. Parmesan or Romano cheese salt & pepper to taste Mix the first three ingredients in advance. Cook 15-minutes with 2-1/2 cups water, and then add the cheese, salt and pepper.