Ready To Eat! 30 Years of the MRE Part 2

Part 2

Written by: Jan Tegler on December 9, 2011

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Members of the 338th Engineer Company test Meals, Ready-to-Eat (MREs) at a Fort McCoy Wis. training site as part of a Natick Soldier Research project. U.S. Army photo by Rob Schuette

Keeping the MRE current and in-step with warfighter needs and preferences is a constant challenge for the relatively small Combat Feeding Directorate. Based in Natick, Mass., at the U.S. Army's Soldier Research, Development & Engineering Center (a component of RDECOM), the directorate is made up of roughly 130 specialists.

> *Broken into eight functional teams, the organization is responsible for research, development, integration, testing and engineering for combat rations, food service equipment technology and combat feeding systems. CFD food scientists, nutritionists, dieticians and nutritional biochemists tackle the varied science and technology aspects of combat feeding, and the ever-changing tastes of contemporary warfighters.*

To stay ahead of that moving target, the CFD collects information from a variety of sources, interacting with warfighters via a quick reaction cell with a live feed to the AORs, at military/industrial trade shows, online in a number of forums, and in the annual field tests discussed in part one of this story.

“By doing this we can very accurately reflect the trends in the marketplace and the variations in taste and preferences of contemporary warfighters,” says CFD technology integration analyst Jeremy Whitsitt.

“For example, a few years ago Buffalo chicken was all the rage,” he explains. “Everybody loved Buffalo wings and our warfighters were no stranger to them, so we field tested a Buffalo chicken entrée which scored very highly. That was then included in the MRE menu. But if you look at our menu today you’ll see a lot of ethnic food items, a lot of Asian dishes and Mexican-style cuisine. That’s truly reflective of what you might see if you step into popular chain-type restaurants like Applebee’s or T.G.I. Fridays.”

Representatives from the U.S. Army Natick Soldier RD&E Center's Combat Feeding Directorate serve new ration recipes at a demonstration at the Pentagon, March 5, 2008. Pfc. Tyler Stratford, of the 3rd U.S. Infantry Regiment (Old Guard), sampled the new rations. RDECOM Photo by Andricka Thomas

The effort to keep up to date with warfighters’ palates harkens back to the CFD’s continuous product improvement program instituted in the early 1990s. Ironically, however, despite early criticism of the MRE for its blandness and the limited number of menus available when it debuted (just eight in the 1980s versus 24 today), the most popular entrée currently is the same as it was 30 years ago.

> *“The most popular MRE entrée over the years has been the spaghetti with meat sauce,” Whitsitt reports. “That was one of the original MREs and it’s still popular!”*

What does the modern warfighter hold in his hands when he receives an MRE? According to Jeremy Whitsitt today’s soldiers, sailors, Marines and airmen receive a thick brown plastic package weighing about 1.5 pounds and measuring .08 cubic feet. Inside is everything a warfighter needs for a complete meal. Each MRE provides about 1,300 calories on average. Thirteen percent of the calories are from protein, 34 percent from fat and 52 percent from carbohydrates.

A Marine with Battalion Landing Team 3/6, 26th Marine Expeditionary Unit (Special Operations Capable), adds Tabasco sauce for added flavor to his breakfast Meal, Ready-to-Eat (MRE) in his bivouac site immediately in front of the Kandahar International Airport, Kandahar, Afghanistan, during Operation Enduring Freedom.

“There’s an entrée, a beef stew or chicken and dumplings which serves as the main dish,” says Whitsitt. “There is also a side dish, a starch or a vegetable. Then there’s a drink and snack-type items like potato sticks, pretzels, trail mix or crackers. A spread is also typically included such as a cheese spread or peanut butter, jelly, something along those lines.”

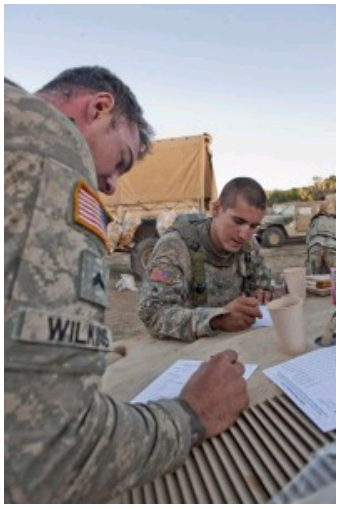
Accompanying the food is an accessory pack containing two pieces of gum, toilet paper, matches, salt and pepper and some type of spice. Eight of the menus have a tiny bottle of Tabasco sauce included. The only thing that needs to be reconstituted is the powdered beverage-based drinks. All the warfighter has to do is add water, shake one up and then drink.

A word about the Tabasco sauce… Highly desired by warfighters as a spicy compliment to some of the less flavorful MREs, the well-known hot pepper sauce caused consternation for the CFD for a long period of time. The packaging used for just about every other item in the MRE wasn’t up to the job of containing the spicy liquid. It ate through every flexible package tested, so initially glass bottles were used.

Tabasco sauce has remained a prized MRE item, but it took some time before packaging issues could be resolved. DoD photo

These proved less than optimal as well. The bottles were vulnerable to breakage given the rough handling MREs commonly experience. Moreover, the cost of using glass bottles surpassed the cost of the product inside, a big "no-no" in the logistics business. But years of trial and error finally led to a solution.

"We tried a lot of different polymer materials, but the high acid content of the Tabasco caused problems over time," Whitsitt recalls. "That's why we kept using the glass bottles. But now we've found the magic combination of polymers and materials. In collaboration with Heinz (H.J. Heinz Company, makers of Heinz ketchup, etc) we designed a flexible pouch that we can put the Tabasco in that meets our minimum shelf life standard. We've achieved massive cost savings and again, decreased the weight of the MRE."



Soldiers take a moment to fill out a field evaluation form after eating a meal developed at Natick Soldier Systems Center. Field evaluations are just one of the many ways that Meals, Ready-to-Eat are constantly tested. NSRDEC photo by David Kamm

The solution to the pesky Tabasco sauce problem is a good example of how the CFD leverages relationships with industrial and academic partners, other government agencies and its customers. It's also an illustration of the unusual challenges the directorate faces when creating combat rations.

"We have a number of unique constraints," Whitsitt affirms. "The MREs have to be shelf-stable for an extended period of time [three years minimum]. That involves food processing and packaging technology and polymer science. It has to be shipped around the world so the challenge there is creating something that's lightweight to save fuel and shipping costs. They also have to be air-droppable and able to withstand impacts from different heights. More than that, they must be able to withstand rough handling, being dragged through mud, etc. And at the end of the day, they have to taste good so that the nutrition being delivered will benefit the warfighter."

In the next installment of this story we'll discuss the number one challenge for the MRE, detail a couple of the weirder myths surrounding the ration, and learn about the MRE and disaster relief.

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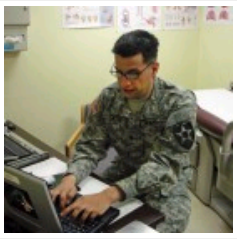

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