



**Department of Food Science and Technology**

Oregon State University, 100 Wiegand Hall, Corvallis, Oregon 97331-6602

T 541-737-3131 | F 541-737-1877 | <http://oregonstate.edu/dept/foodsci/>

## **OSU Sensory Evaluation Report for Consumer Acceptance Testing of Chili Mac Entrees**

August 11<sup>th</sup>, 2014

**TO:** Giovanna Aleman, Food Technologist  
Oregon Freeze Dried Foods  
T: 541-926-6001 ext 237  
[giovanna.aleman@ofd.com](mailto:giovanna.aleman@ofd.com)

**From:** Cindy Lederer, Sensory Lab Manager  
Sensory Science Laboratory, Oregon State University  
T: 541-737-6506  
[cindy.lederer@oregonstate.edu](mailto:cindy.lederer@oregonstate.edu)

**Company Objective:** To determine consumer liking of freeze-dried food chili mac entrees: Mountain House (MH) vs. five competitor products.

**Sensory Objective:** To determine if **Mountain House Chili Mac with Beef** is liked by consumers either “equally to or more than” **Competitor chili mac** products, respectively, at 95% confidence level.

**Screener:** Appendix 1

**Consent Form:** Appendix 2

**Consumer Tasting  
Ballot and Demographic  
Questionnaire:** Appendix 3

**Open-Ended  
Comments:** Appendices 4-9 (provided as a separate report document)

**Temperature Chart:** Appendix 10

**Testing Photos:** Appendix 11

**Test Method:** Consumer acceptability testing (Overall Liking and Appearance Liking; 9-points)  
Sequential Monadic Serving

**Test Dates:** July 23<sup>rd</sup>, 2014 from 10:00 to 5:00 (30 min. sessions) (n=80)

**Sample Information:**

<b>Brand/Product Name</b>	<b>Product Identification</b>	<b>Company/Supplier</b>	<b>3 Digit Code</b>
<b>Mountain House</b> Chili Mac with Beef	Supplier:	Oregon Freeze Dry, Inc. Albany, OR	550
	Manufacture Date:	MFG APR 15 2014 03:36	
	Net Weight:	4.8 oz./135 g	
	Product Code:	3253128 F Rev. 1201BK	
	UPC:	0 41133 53128 3	
	Quantity:	14	
<b>Legacy Premium</b> Chili Mac	Supplier:	Legacy Food Storage Salt Lake City, UT	831
	Manufacture Date:	7/7/2014	
	Net Weight:	14.0 oz./397 g	
	Lot #	PLANT #49-09	
	UPC:	856074003740	
	Quantity:	14	
<b>Wise Company</b> Chili Mac	Supplier:	Wise Company Salt Lake City, UT	199
	Manufacture Date:	5/19/2014	
	Net Weight:	9.7 oz./275 g	
	Product Code:		
	UPC:	851238005097	
	Quantity:	14	
<b>Grizzly Ridge</b> Chili Macaroni with Beef	Supplier:	Blue Chip Group Salt Lake City, UT	314
	Best By:	24-Feb-21	
	Net Weight:	5.43 oz./154 g	
	Product Code:	LOT 25FEB14 16:58	
	UPC:	78716262036	
	Quantity:	14 packages	

<b>Backpacker's Pantry</b> Chili Macaroni & Beef	Supplier:	American Outdoor Products, Inc. Boulder CO	711
	Best By:	5/23/2021	
	Net Weight:	5.3 oz./150 g	
	Product Code:		
	UPC:	0 48143 02455 2	
	Quantity:	14	
<b>Augason Farms</b> <b>Ready Cuisine</b> Chili Macaroni Kit with Freeze dried Beef	Supplier:	Blue Chip Group Salt Lake City, UT	254
	Best By:	17-Dec-38	
	Net Weight:	48 oz./ 1.36 kg/ 3 lbs.	
	Product Code:	002730-170413	
	UPC:	078716002731	

## Sensory Protocol and Methodology

### Consumer Recruitment

Eighty consumers were recruited from the Corvallis community based on the below recruiting Appendix 1):

25 - 55 years old

~2/3 women

2+ children

\* High School Grads, Some College, and/or Trade School as first recruitment selection.

*\*Consumers with advanced education as needed to fill in when we couldn't fill the first objective recruit: "high school grads, some college, and/or trade school".*

### Sensory Methodology

Acceptance testing was used to determine how much each sample is liked based on a 9-point hedonic scale for two attributes, Overall Liking and Appearance Liking, where 9=*like extremely* and 1=*dislike extremely* (See Appendix 3 Ballot).

Consumers were offered an opportunity to comment on what they liked and on what they disliked for each sample (open ended comment) (Appendix 3 ballot; results in Appendices 4 - 9).

Consumers were asked to answer a demographic questionnaire at the end of testing (Appendix 3).

## Testing Procedure

Testing took place in the Sensory Science Laboratory within the Department of Food Science and Technology, Oregon State University. Upon arrival, consumers were first asked to sign a consent form (as required by Oregon State University) (Appendix 2). Consumers were pre-scheduled to come in at 30-min intervals (beginning at 10:00 am and ending at 5:00 pm). There were six consumers per testing interval.

Consumers were seated in individual booths under white lighting. The server instructed them to register with a panelist number (See **Experiment Design**). This number linked the consumer to a particular serving order to fulfill our experimental design.

They recorded their responses using computerized ballots developed by sensory lab personnel (Compusense Five®, v.5.2 software (Guelph, Canada). After acceptance testing was completed, consumers were asked to complete a demographic questionnaire (non sample related questions) (Appendix 3 Ballot and Demographic Questionnaire).

## Experimental Design

A partially-balanced, complete block design was used to provide a minimum of 75 observations on each sample. A partially-balanced design means that within a 30-minute session, the same serving order of 6 samples was used for the 6 consumers whom attended that session. By controlling the serving order, the preparers could concentrate on making one sample type at a time and the product did not have to be held too long before serving. Therefore, only one package per session was opened (or volumetrically measured from a can) and this product was served to all six people at the same time.

In addition, the design was controlled by “Groupings” where a group consisted of a “Pouch” and “Pot” products (there were 3 groups – per group, one pouch and one pot prep). There were 3 prep persons: Each prep person was in charge of preparing one “pouch-rehydrated” sample and one “made in a pot” sample and this person kept the same two samples throughout the day. The reason for doing this was that it provided consistency in sample prep across the testing day (less chance of error in preparation). Another reason for grouping was to make it so each prep person had the same level of difficulty: For example, pouch prep was easier than pot prep and by assigning a pot and a pouch to each person allowed by the same level of difficulty across the three servers. Again, it provided less chance of error in preparation.

To prevent consumer bias due to getting the same sample served in the same position all day, the serving order was randomized ***Across groups*** and ***Within groups***.

For example, the serving order of the three ***groupings*** was randomized across the day so that each ***group of pot and pouch*** were served in the 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> order an approximate equal number of times. In addition, ***Within each grouping***, each sample was served in the 1<sup>st</sup> or 2<sup>nd</sup> serving order an approximate equal number of times.

### **Statistical Analysis**

Univariate Analysis of Variance (ANOVA) was conducted on sample mean ratings for **Liking** (Compusense 5.0®, version 5.2, Guelph, Canada). The ANOVA model was comprised of two main effects: CONSUMER and SAMPLE. CONSUMER was treated as a random effect and SAMPLE was treated as a fixed effect. Significant differences detected by ANOVA were subjected to post-hoc Tukey HSD multiple comparison to test of SAMPLE means at the 95% confidence interval ( $p \leq 0.05$ ).

### **Sample Preparation**

Per session, the below preparation methods were used for “Pouch” and for “Pot”:

#### **Pouch**

Water was added to a 4-quart, copper-bottom tea kettle (Reverware®) and brought to a boil. Each pouch was torn open at the tear notch. Oxygen absorbers were removed from the pouches and discarded. Two cups of boiling water were added to a Pyrex measuring cup (Corning Inc.) and then poured into the pouch. The contents were stirred thoroughly and the pouch was closed using the seal at the top.

#### **#550 Mountain House (POUCH)**

Open package at tear notch. Remove and discard oxygen absorber. Add 2 cups boiling water to pouch. Stir thoroughly and close zipper. Let stand 8-9 minutes. Serve 1/3 cup quantities.

#### **#314 Grizzly Ridge (POUCH)**

Open pouch and remove oxygen absorber. Shake contents of pouch. Pour 2 cups of boiling water into pouch. Stir thoroughly and reseal pouch. Let stand for 10 minutes. Serve 1/3 cup quantities.

#### **#711 Backpacker’s Pantry (POUCH)**

Open package at tear notch. Remove and discard oxygen absorber. Add 2 and ¼ cups boiling water to pouch. Stir well. Seal and let sit for 13 minutes. Stir and serve 1/3 cup quantities

#### **Pot**

Water was added to a 4-quart, copper-bottom tea kettle (Reverware®) and brought to a boil. This water was used as the source for when “Pot” instructions called for adding water. One and ½ quart, stainless-steel, sauce pans with lids were used for stove top prep samples.

#### **#831 Legacy Premium (POT)**

2 Cup Serving Instructions:

Bring 3 cups of water to boil in pan. Slowly whisk in one and ½ cups (volumetric) of product. Lower heat and cook 20-25 minutes at low boil, stirring occasionally. Serve 1/3 cup quantities.

**#199 Wise Company (POT)**

Bring 4 cups of water to boil in pan. Add contents of pouch into boiling water and stir. Cover. Turn off heat and cover, Let stand for 13 minutes, stirring occasionally. Cool. Uncover and let cool for 3 minutes before serving. Serve 1/3 cup quantities.

**#254 Augason Farms Ready Cuisine (POT)**

Add two cups of water to a pot and bring it to a boil. Add ingredients to boiling water; stir well. Reduce heat. Cook on a low boil 18-20 minutes, stirring frequently. Serve 1/3 cup quantities.

When the timer went off, the product was stirred again and the product delivered to the serving plate. Sample serving temperatures across the day ranged from 132°F to 191 °F (Appendix 10).

**Sample Serving**

One-third cup sample amounts were delivered to eight-ounce, white paperboard food container bowls (appropriate for heated foods/beverages) (bowl code 71203, Huhtamaki, Fulton, NY). Sample bowls were immediately served to waiting consumers with white plastic spoons (Appendix 11 Testing Photos). Each sample bowl was identified by a three-digit random number representing the sample (see **Sample Information**).

Six sample bowls were served monadically to each consumer (one at a time): Each sample served was removed before the consumer received the next sample. Consumers were instructed to drink spring water to cleanse their palates between samples.

**Results**

**Table 1 Sample Means <sup>1</sup> (Standard Deviations) and Significance for Consumer Acceptance Testing of Chili Mac Entrees (OSU Sensory Lab) (n=80)**

*Multiple Comparison Test Used: Tukey's HSD 5%*

Attribute Title/ Standard Dev.	p value	HSD value	#550 Mountain House Mean	#831 Legacy Premium Mean	#199 Wise Mean	#314 Grizzly Mean	#711 Backpacker's Pantry Mean	#254 Augason Farms Mean
<b>Overall Liking*** (SD)</b>	0.0000	0.7103	6.82 a ( 1.39)	5.06 bc ( 1.98)	4.82 c ( 1.87)	5.63 b ( 1.91)	3.80 d ( 2.15)	5.34 bc ( 2.13)
<b>Appearance Liking*** (SD)</b>	0.0000	0.6941	7.36 a ( 1.14)	5.21 c ( 2.00)	4.78 c ( 2.01)	6.56 b ( 1.75)	3.35 d ( 2.06)	5.10 c ( 1.99)

\*\*\*Attribute Significant at  $p < 0.001$ . This means you have 99.9% confidence that one or more samples within this attribute are different from one another.

<sup>abc</sup>Means within a row with different letters are significantly different from one another at  $p < 0.05$  Tukey's HSD

<sup>1</sup> Rating Scale: 1=dislike extremely, 2=dislike very much, 3=dislike moderately, 4=dislike slightly, 5=neither like or dislike, 6=like slightly, 7=like moderately, 8=like very much, and 9=like extremely.

## Discussion

### *Overall Liking\*\*\**

Attribute Title/ Standard Dev.	p value	HSD value	#550 Mountain House Mean ( 1.39)	#831 Legacy Premium Mean ( 1.98)	#199 Wise Mean ( 1.87)	#314 Grizzly Mean ( 1.91)	#711 Backpacker's Pantry Mean ( 2.15)	#254 Augason Farms Mean ( 2.13)
<b>Overall Liking*** (SD)</b>	0.0000	0.7103	6.82 a	5.06 bc	4.82 c	5.63 b	3.80 d	5.34 bc

**Overall, considering APPEARANCE, AROMA, FLAVOR, and TEXTURE, how much do you like or dislike this Chili Mac sample?**

There was a significant sample effect ( $p < 0.001$ ): Means within a row with different letters are significantly different from one another (Tukey's HSD  $p < 0.05$ ) (Table 1).

Sample means ranged from 3.8 (Backpacker's Pantry) to 6.8 (Mountain House) (3=dislike moderately, 4=dislike slightly, 5=neither like nor dislike, 6=like slightly, 7=like moderately).

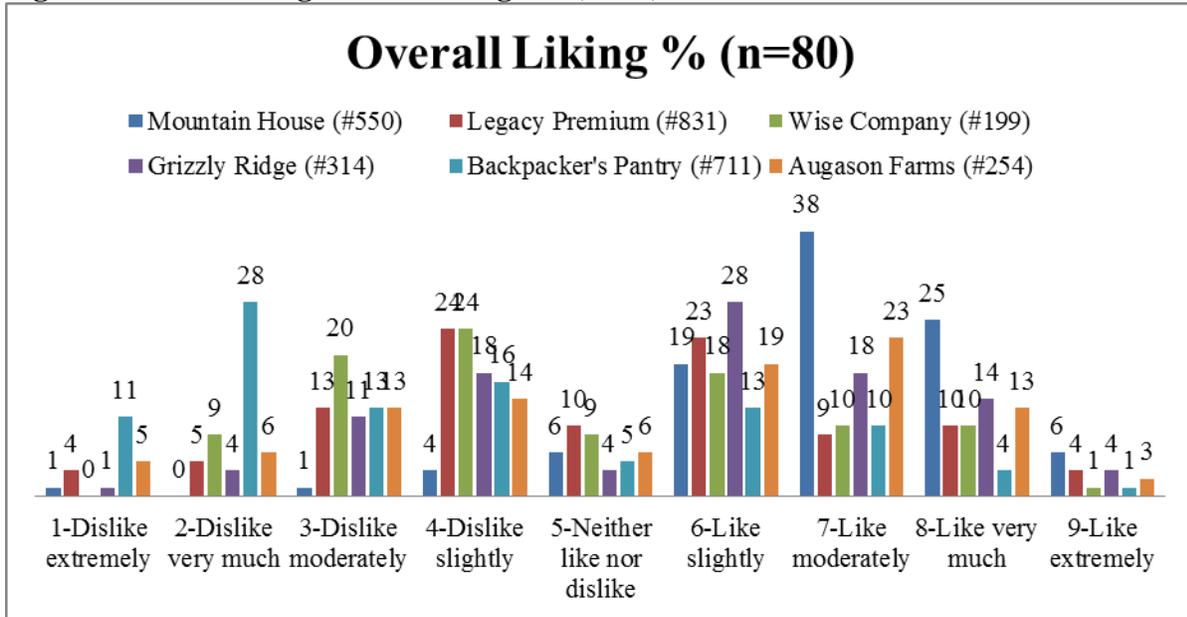
Overall, Mountain House (6.8) Chili Mac was liked significantly more than the other five Chili Mac entrees ( $p < 0.05$ ). In addition, Legacy Premium (5.1), Wise (4.8), Grizzly (5.6), and Augason Farms (5.3) means were significantly higher than Backpack's Pantry mean (3.8) ( $p < 0.05$ ). Grizzly mean (5.6) was significantly higher than Wise mean (4.8) ( $p < 0.05$ ).

Refer to Table 2 below for a 3-way breakdown of percentage overall liking ratings per sample. Refer to Fig. 1A/B below for a breakdown of percentage overall liking per rating/sample, respectively.

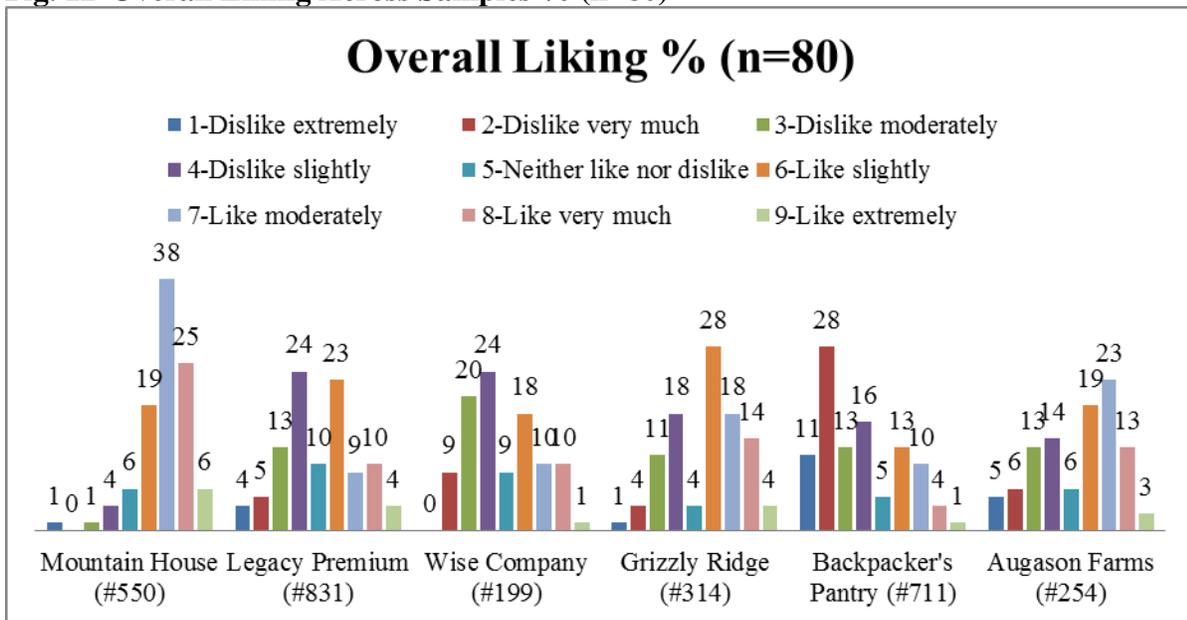
**Table 2 Overall Liking Summary Box % (n=80)**

Overall Liking	Disliking (1 to 3)	Non-Committal Center (4 to 6)	Liking (7 to 9)
Mountain House	3	29	69
Legacy Premium	21	56	23
Wise Company	29	50	21
Grizzly Ridge	16	49	35
Backpacker's Pantry	51	34	15
Augason Farms	24	39	38

**Fig. 1A Overall Liking Across Ratings % (n=80)**



**Fig. 1B Overall Liking Across Samples % (n=80)**



### *Appearance Liking\*\*\**

Attribute Title/ Standard Dev.	p value	HSD value	#550 Mountain House Mean ( 1.14)	#831 Legacy Premium Mean ( 2.00)	#199 Wise Mean ( 2.01)	#314 Grizzly Mean ( 1.75)	#711 Backpacker's Pantry Mean ( 2.06)	#254 Augason Farms Mean ( 1.99)
<b>Appearance Liking*** (SD)</b>	0.0000	0.6941	7.36 a	5.21 c	4.78 c	6.56 b	3.35 d	5.10 c

### **OVERALL**, how much do you *like* or *dislike* the **APPEARANCE** of this Chili Mac sample?

There was a significant sample effect ( $p < 0.001$ ): Means within a row with different letters are significantly different from one another (Tukey's HSD  $p < 0.05$ ) (Table 1).

Sample means ranged from 3.4 (Backpacker's Pantry) to 7.4 (Mountain House) (3=dislike moderately, 4=dislike slightly, 5=neither like nor dislike, 6=like slightly, 7=like moderately, 8=like very much).

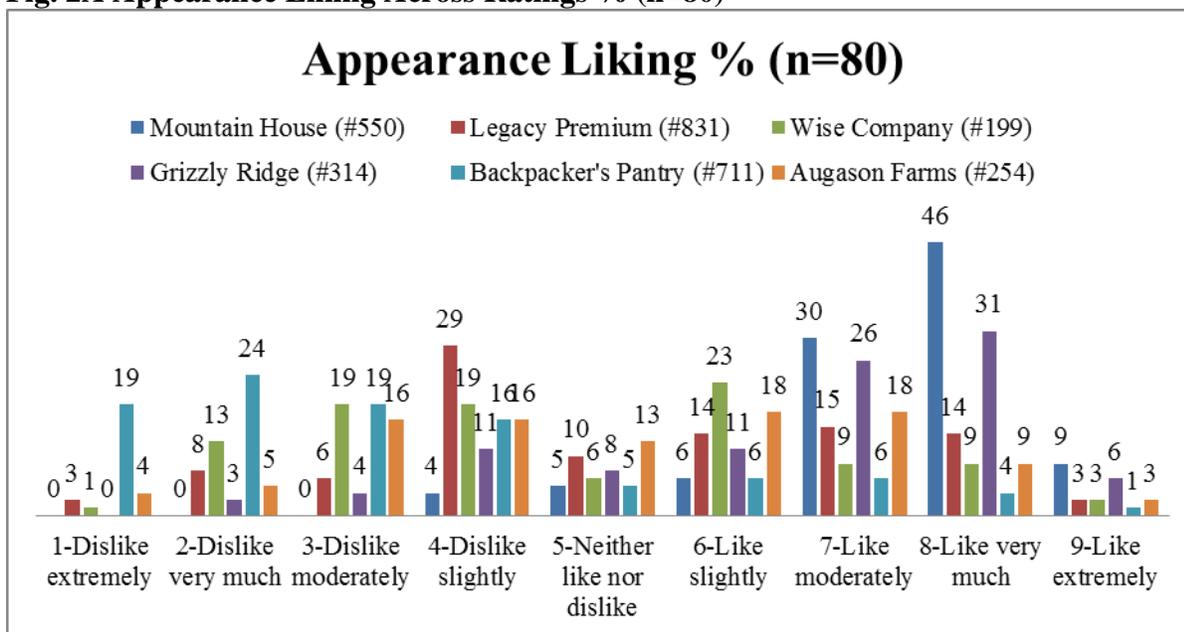
For appearance, Mountain House (7.4) Chili Mac was liked significantly more than the other five Chili Mac entrees ( $p < 0.05$ ). In addition, Legacy Premium (5.2), Wise (4.8), Grizzly (6.6), and Augason Farms (5.1) means were significantly higher than Backpack's Pantry mean (3.4) ( $p < 0.05$ ). Grizzly mean (6.6) was significantly higher than Premium Legacy (5.2), Wise (4.8) and Augason Farms (5.1) means ( $p < 0.05$ ).

Refer to Table 3 below for a 3-way breakdown of percentage appearance liking ratings per sample. Refer to Fig. 2A/B below for a breakdown of percentage appearance liking per rating/sample, respectively.

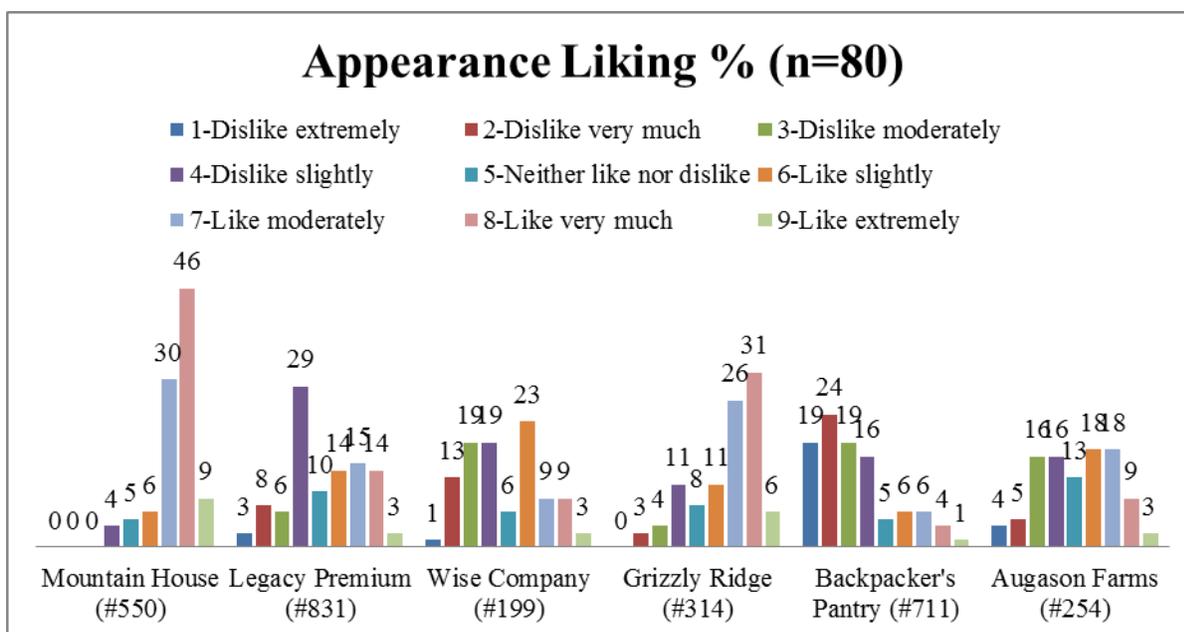
**Table 3 Appearance Liking Summary Box % (n=80)**

<b>Appearance Liking</b>	<b>Disliking (1 to 3)</b>	<b>Non-Committal Center (4 to 6)</b>	<b>Liking (7 to 9)</b>
Mountain House	0	15	85
Legacy Premium	16	53	31
Wise Company	33	48	20
Grizzly Ridge	6	30	64
Backpacker's Pantry	61	28	11
Augason Farms	25	46	29

**Fig. 2A Appearance Liking Across Ratings % (n=80)**



**Fig. 2B Appearance Liking Across Samples % (n=80)**



*Consumer Comments provided in Appendices 4-9 (separate report document).*

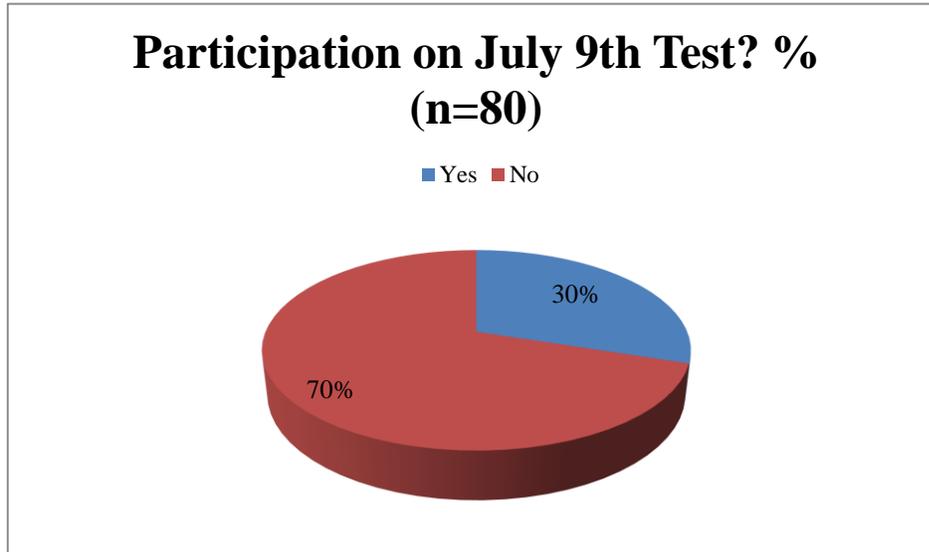
## Demographic Questionnaire Results

Eighty consumers participated in the test. The results for the demographic questionnaire (non-sample related questions) are provided below (n=count).

**Did you participate in the meals test on July 9<sup>th</sup>?**

Yes (n=24)

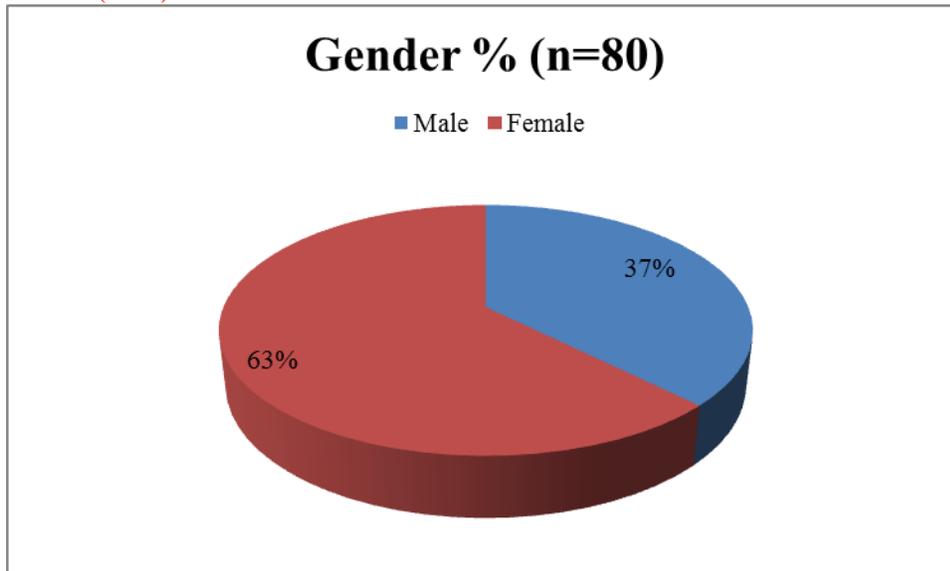
No (n=56)



**Please indicate your gender.**

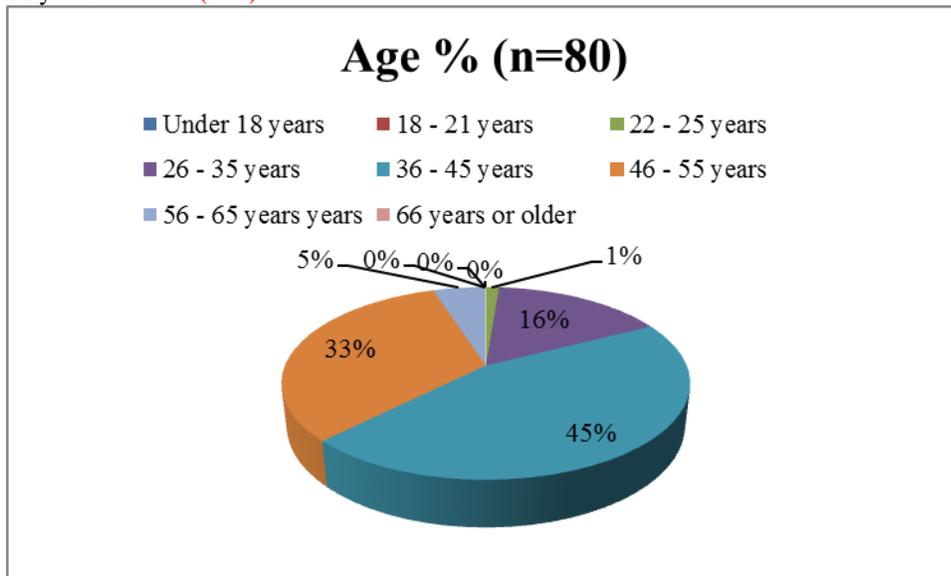
Male (n=30)

Female (n=50)



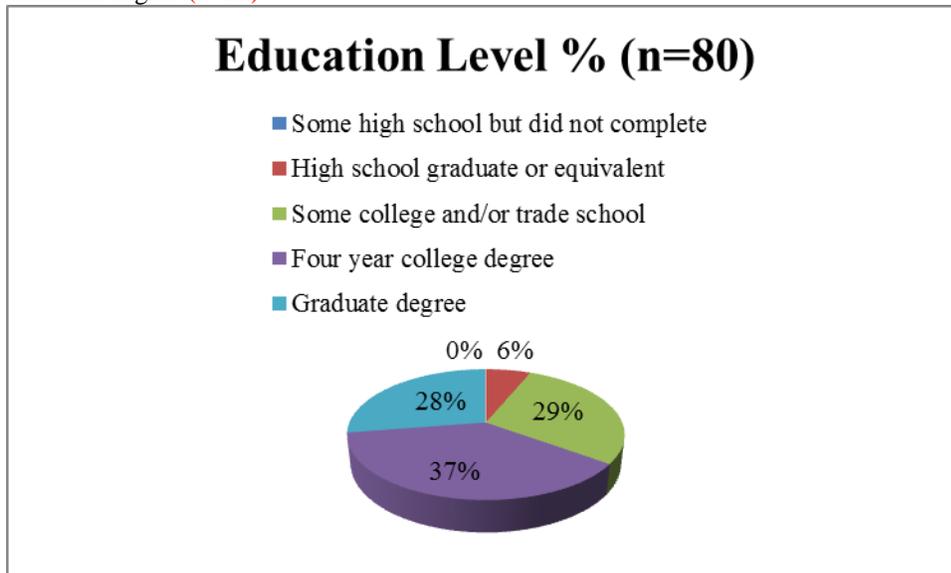
**Please indicate your age category.**

- Under 18 years (n=0)
- 18 - 21 years (n=0)
- 22 - 25 years (n=1)
- 26 - 35 years (n=13)
- 36 - 45 years (n=36)
- 46 - 55 years (n=26)
- 56 - 65 years (n=4)
- 66 years or older (n=0)



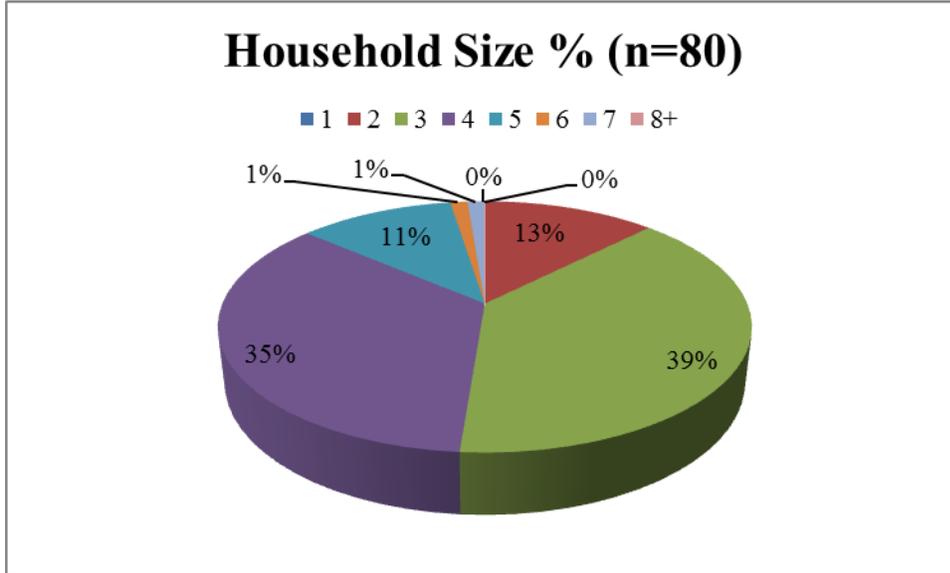
**Which of the following best represents your education level?**

- Some high school but did not complete (n=0)
- High school graduate or equivalent (n=5)
- Some college and/or trade school (n=23)
- Four year college degree (n=30)
- Graduate degree (n=22)



**Which of the following describes your household size?**

- 1 (n=0)
- 2 (n=10)
- 3 (n=31)
- 4 (n=28)
- 5 (n=9)
- 6 (n=1)
- 7 (n=1)
- 8+ (n=0)



## Appendix 1 Recruiting Screener

### Meal Taste Test at OSU Sensory Lab

We are running a meal taste test that will take place on **Wednesday, July 9th (from 10:00 to 5:00)**. Testing will be every **30** minutes. You will receive \$10 gift certificates to one of many local restaurants and businesses. The Sensory Lab is located in Wiegand Hall (tasting booths room 204) on the corner of 30<sup>th</sup> and Campus Way.

Would you like to participate? If yes, please reply to the screener below by using the 'reply' function on your e-mail. We will contact you by Monday, July 7th (latest) to let you know whether or not you qualify.

Thank you for your time  
Sensory Lab\_\_\_\_\_

YOUR NAME:  
DAY-TIME PHONE #:  
email address:

#### TIME REQUESTED:

**Wednesday, July 9th** 10:00, 10:30, 11:00..... 4:30 (last session is 4:30 to 5:00)

**Which taste tests have you participated in the past few months? Please check all that apply.**

- a. Coffee
- b. Skillet Meals
- c. Soups
- d. Crackers
- e. None of the above

**Please indicate your sex.**

- Male
- Female (Recruitment Two-thirds women)

**Please indicate your age category.**

- Under 18 years
- 18 - 21 years
- 22 - 25 years
- 26 - 35 years
- 36 - 45 years
- 46 - 55 years
- 56 - 65 years
- 66 years or older

**Which ONE of the following categories best represents your educational level?**

(Recruitment note –Select a representative sampling from yellow and green but try to fill it with the majority of consumers from yellow)

- Some high school but did not complete
- High school graduate or equivalent

- Some college and/or trade school
- Four year college degree
- Graduate degree

**If you have children living at home, please indicate their age range(s).**

(Recruitment note: Choose as FIRST CHOICE those consumers who indicate they have 2 or more children)

- 0-5 years
- 6-11 years
- 12-18 years
- Over 18 years
- I do not have children living at home

**Which of the following food entrees do you like and are you willing to consume? (Select all that apply.)**

- Beef stew
- Chicken Teriyaki
- Mac & Cheese
- Eggplant Parmesan
- Mexican Style Rice & Chicken
- None of the above

Yellow highlighted text = qualified respondents

Green highlighted text = qualified if quota not reached with yellow

## Appendix 2 Informed Consent Document

### Informed Consent Document

**Project Title:** Consumer Acceptance of Chili Mac Entrees  
**Date:** July 23<sup>rd</sup>, 2014  
**Principal Investigator:** Cindy Lederer

#### WHAT IS THE PURPOSE OF THIS STUDY?

This is a research study. The purpose of this research study is to determine consumer taste preferences for six commercially processed chili mac samples. The results of this study will be shared with the company who is sponsoring this project.

#### WHAT IS THE PURPOSE OF THIS FORM?

The purpose of this consent form is to give you the information you will need to help you decide whether to be in the study or not. Please read the form carefully. You may ask any questions about the research, what you will be asked to do, the possible risks and benefits, your rights as a volunteer, and anything else about the research or this form that is not clear. When all of your questions have been answered, you can decide if you want to be in this study or not. This process is called “informed consent”. Upon request, you will be given a copy of this form for your records.

#### WHY AM I BEING INVITED TO TAKE PART IN THIS STUDY?

We are inviting you to participate in this research study because you are 18 years or older and because you like and consume these meal types and you do not have allergies to the ingredients in these samples.

#### WHAT WILL HAPPEN DURING THIS STUDY AND HOW LONG WILL IT TAKE?

If you agree to participate, your involvement will last for approximately 30 minutes. You will be asked to taste six samples, each served individually. The samples are each 2.5 ounces. You may choose to drink spring water to cleanse your palate and you will also be asked to fill out a short demographic survey at the end.

#### WHAT ARE THE RISKS OF THIS STUDY?

Allergic reactions to the ingredients in these samples are a potential risk. Therefore, if you are allergic to any of the ingredients listed below, you are not eligible to participate.

##### **Ingredient Statements:**

**Product #1:** Cooked beef (beef, flavoring, salt), enriched macaroni (durum semolina enriched with niacin, iron, thiamine mononitrate, riboflavin, folic acid), kidney beans, tomato paste, chili seasoning (chili pepper and other spices, dehydrated onion and garlic, salt, hydrolyzed soy protein, potassium chloride, paprika, sugar, maltodextrin, beef extract, disodium inosinate and disodium guanylate, autolyzed yeast extract, caramel color, natural flavors, citric acid), and modified corn starch.

**Product #2:** Pre-cooked pinto & kidney beans, pasta (enriched durum semolina, niacin, ferrous sulfate (iron), thiamine mononitrate, riboflavin, folic acid), tomato powder, spices, dehydrated vegetables (onions, red & green bell peppers), sugar, garlic powder, food starch-modified, caramel, sea salt, citric acid, onion powder.

**Product #3:** pasta (durum semolina flour (wheat), niacin, ferrous sulfate (iron), thiamine mononitrate, riboflavin, folic acid), maltodextrin, textured vegetable protein (soy flour), caramel color, sweet whey powder, pinto beans, bleached wheat flour (malted barley flour, niacin, iron, thiamin mononitrate, riboflavin, folic acid), tomato powder dried onion spices, salt, sugar, hydrolyzed soy protein, guar gum, natural flavors, garlic powder, caramel color, disodium inosinate and disodium guanylate, citric acid, yeast extract, turmeric (color), coconut oil.

**Product #4:** macaroni (semolina niacin, ferrous sulfate (iron), thiamine mononitrate, riboflavin, folic acid, dehydrated tomato paste, dehydrated chorizo refried beans (pinto beans, hydrogenated canola oil, textured soy protein (soy flour, caramel color, partially hydrogenated soybean oil, water, salt, sugar, hydrolyzed corn-soy wheat gluten protein, natural flavors, corn syrup, maple syrup) freeze dried beef dices, chili salt, spices,

garlic onion, citric acid), freeze-dried beef chunks (salt added), chili pepper powder, and green bell peppers, modified food starch, chopped onions, salt, sugar, parsley, garlic powder, basil, oregano

**Product #5:** elbow macaroni (durum semolina flour (wheat), niacin, ferrous sulfate (iron), thiamine mononitrate, riboflavin and folic acid), sauce (wheat flour (wheat flour, malted barley flour, niacin, reduced iron, thiamine mononitrate, riboflavin, folic acid), salt, tomato, new Mexico chili pepper, onion, sugar, guar gum cumin see, coriander seed, garlic, oregano), beef (cooked diced and freeze dried).

**Product #6:** macaroni (semolina, niacin, ferrous sulfate (iron), thiamine mononitrate, riboflavin, folic acid), freeze dried beef chunks (salt added), precooked red beans, modified food starch, beef base, salt, hydrolyzed soy protein (including partially hydrogenated soybean oil), sugar torula yeast, corn starch, caramel color, maltodextrin, onion powder, yeast extract and natural flavor, citric acid, silicon dioxide) dehydrated tomato paste, salt, white granulated sugar, chopped onion, red and green bell peppers, chili pepper powder, garlic powder, cumin, caramel color.

**ALLERGENS:** Milk, Wheat, Soy

### **WHAT ARE THE BENEFITS OF THIS STUDY?**

There are no personal benefits for participating in this study.

### **WILL I BE PAID FOR PARTICIPATING?**

You will be compensated for participating in this research project. After completing the taste testing session, you will be given your choice of \$5 gift certificate to local area merchants (like restaurants, video stores, coffee shops, bakeries, and grocery stores).

### **WHO WILL SEE THE INFORMATION I GIVE?**

Records of participation in this research project will be kept confidential to the extent permitted by law. In the event of any report or publication from this study, your identity will not be disclosed. Results will be reported in a summarized manner in such a way that you cannot be identified.

### **DO I HAVE A CHOICE TO BE IN THE STUDY?**

Taking part in this research study is voluntary. You may choose not to take part at all. If you agree to participate in this study, you may stop participating at any time. You may choose to decline to answer any question(s) you choose. If you decide not to take part, or if you stop participating at any time, your decision will not result in any penalty or loss of benefits to which you may otherwise be entitled. Any data collected from you prior to withdrawal will be destroyed and not included in the study results. You will be given your compensation if you do not complete testing.

### **WHAT IF I HAVE QUESTIONS?**

Questions are encouraged. If you have any questions about this research project, please contact: Cindy Lederer at (541) 737-6506 or [Cindy.Lederer@oregonstate.edu](mailto:Cindy.Lederer@oregonstate.edu). If you have questions about your rights as a participant, please contact the Oregon State University Institutional Review Board (IRB) Human Protections Administrator, at (541) 737-4933 or by e-mail at [IRB@oregonstate.edu](mailto:IRB@oregonstate.edu).

Your signature indicates that this research study has been explained to you, that your questions have been answered, and that you agree to take part in this study. You will receive a copy of this form.

Participant's Name (printed): \_\_\_\_\_

\_\_\_\_\_  
(Signature of Participant)

\_\_\_\_\_  
(Date)

## Appendix 3 ballot and Demographic Questionnaire

## WELCOME to the *Chili Mac* Consumer Taste Test

You will have 30 minutes to evaluate six chili mac entrees  
and complete a demographic questionnaire.

Click on 'continue' to go to the next screen.

Panelist Code: \_\_\_\_\_

Question # 1 - Sample \_\_\_\_\_

Please *look at and then taste the chili mac sample.*

**OVERALL**, considering **APPEARANCE, AROMA, FLAVOR, and TEXTURE**, how much do you *like or dislike* this chili mac sample?

- Like extremely
- Like very much
- Like moderately
- Like slightly
- Neither like nor dislike
- Dislike slightly
- Dislike moderately
- Dislike very much
- Dislike extremely

Question # 2 - Sample \_\_\_\_\_

Please *look at the chili mac sample and answer the following appearance question:*

**OVERALL**, how much do you *like or dislike* the **APPEARANCE** of this chili mac sample?

- Like extremely
- Like very much
- Like moderately

- Like slightly
- Neither like nor dislike
- Dislike slightly
- Dislike moderately
- Dislike very much
- Dislike extremely

**Question # 3 - Sample \_\_\_\_\_**

Overall, what do you **LIKE** about this chili mac sample?

(note: in order to move to the next screen, you must write something in the comment box. If you do not have a comment, just write 'no comment' or 'none' etc.)

---



---



---

**Question # 4 - Sample \_\_\_\_\_**

Overall, what do you **DISLIKE** about this chili mac sample?

(note: in order to move to the next screen, you must write something in the comment box. If you do not have a comment, just write 'no comment' or 'none' etc.)

---



---



---

**Question # 6.**

Did you participate in the Meals Taste Test on July 9th?

- Yes
- No

**Question # 7.**

Please indicate your gender.

- Male
- Female

**Question # 8.**

Please indicate your age category.

- Under 18 years
- 18 - 21 years
- 22 - 25 years
- 26 - 35 years
- 36 - 45 years
- 46 - 55 years
- 56 - 65 years
- 66 years or older

**Question # 9.**

Which one of the following categories best represents your educational level?

- Some high school but did not complete
- High school graduate or equivalent
- Some college and/or trade school
- Four year college degree
- Graduate degree

**Question # 10.**

Which of the following best describes your household size?

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8+

**You need to write the password for today on the paper provided in your booth. You will need to give your paper to the receptionist to receive your gift cards.**

***The password of the day is:***

**Purple**

**Be sure to click 'continue' before you leave.**

**Thank you!**

**Note: When you exit the booth, please do not discuss your opinion of the products when you collect your gift certificates.**

**Thank you for tasting Chili Mac for us today!**

***Please open the sliding door & push your tray through to let the server know you are finished.***

**Appendices 4-9 Consumer comments provided in an external report document.****Appendix 10 Serving Temperatures (°F)**

<b>Session</b>	<b>#199</b>	<b>#254</b>	<b>#550</b>	<b>#314</b>	<b>#711</b>	<b>#831</b>
10:00	133	180	182	156	149	181
11:00	140	184	180	162	150	173
12:00	137	182	181	160	148	172
1:00	132	168	not taken	152	151	191
2:00	136	170	179	156	150	180
3:00	138	176	184	161	152	178
4:00	140	175	180	154	160	170

**Appendix 11 Testing Photos**

**Product Packaging**



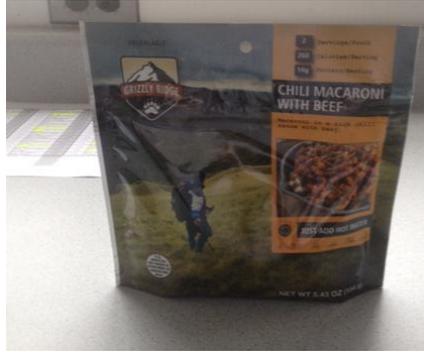
**#550 Mountain House Chili Mac with Beef**



**#831 Legacy Premium Chili Mac**



**#199 Wise Company Chili Mac**



**#314 Grizzly Ridge Chili Macaroni with Beef**



**#711 Backpacker's Pantry Chili Macaroni & Beef**



**#254 Augason Farms Ready Cuisine Chili Macaroni Kit with Freeze Dried Beef**

**Samples as Served to Consumer**



**#550**  
**Mountain House**  
**Chili Mac with Beef**



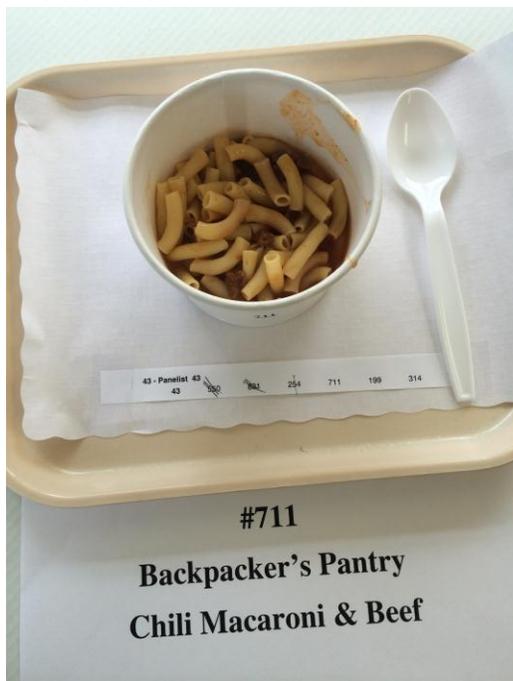
**#831**  
**Legacy Premium**  
**Chili Mac**



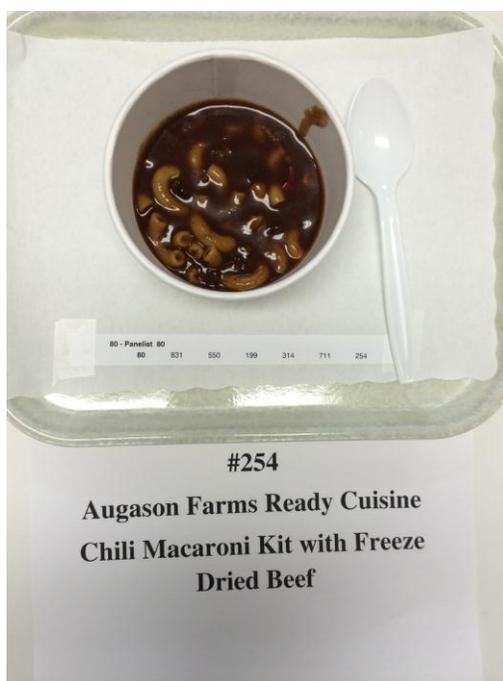
**#199**  
**Wise Company**  
**Chili Mac**



**#314**  
**Grizzly**  
**Chili Macaroni with Beef**



**#711**  
**Backpacker's Pantry**  
**Chili Macaroni & Beef**



**#254**  
**Augason Farms Ready Cuisine**  
**Chili Macaroni Kit with Freeze**  
**Dried Beef**