



# ViM Beneficiary Taste Tests of Title II Food Aid Products Sanmantenga Province, Burkina Faso

## A Report from the Food Aid Quality Review

**Prepared by:**

Nadira Saleh

December 2013

This report was produced for the United States Agency for International Development. It was prepared under the terms of the contract AFP-C-00-09-00016-00 awarded to the Friedman School of Nutrition Science and Policy at Tufts University.

This report was made possible by the generous support of the American people through the support of the United States Agency for International Development (USAID) and the USAID Office of Food for Peace (FFP) of the Bureau for Democracy, Conflict and Humanitarian Assistance (DCHA), under the terms of Contract AFP-C-00-09-00016-00, managed by Tufts University.

The contents are the responsibility of Tufts University and its partners in the Food Aid Quality Review (FAQR) and do not necessarily reflect the views of the United States Agency for International Development (USAID), the United States Government.

The authors have no conflict of interest to declare.

December 2013

### **Recommended Citation**

Saleh, Nadira 2013. *ViM Beneficiary Taste Tests of Title II Food Aid Products Sanmantenga Province, Burkina Faso. A report prepared for the Food Aid Quality Review*, managed by Tufts University's Friedman School of Nutrition Science and Policy. Boston, MA

This document may be reproduced without written permission by including a full citation of the source.

### **For correspondence, contact:**

Nadira Saleh (Tufts University) 2013.

**Contents**

Acronyms ..... 4

Tables and Figures ..... 5

Part I: Introduction and protocol for taste tests..... 6

    a) Participants ..... 6

    b) Taste Test and Interviews ..... 7

Part II: Observations and experiences from preparations of porridges..... 7

Part III: Results from taste tests with IRSS and SAVE ..... 9

    a) IRSS and Save the Children Responses from self-administered questionnaire on sensory characteristics of each food..... 10

    b) Responses from IRSS and SAVE group discussions ..... 11

Part IV: Results from taste tests with beneficiaries ..... 12

    a) Preparation/Observation ..... 12

    b) Results from Interview ..... 13

        II) Characteristics enjoyed in each food ..... 15

        III) Likelihood and motivations for feeding food to child..... 16

        IV) Beneficiary mothers’ recipe instructions ..... 19

Part V: Notes and limitations ..... 22

Part VI: Summary and conclusion ..... 23

## Acronyms

CSB	Corn Soy Blend
CSB+	Corn Soy Blend Plus
CSB13	Corn Soy Blend 13
CSB14	Corn Soy Blend 14
FAQR	Food Aid Quality Review
FDP	Food Distribution Point
FFP	Food for Peace
FVO	Fortified Vegetable Oil
HNP	Health and Nutrition Promoter
IRSS	Institut de Recherche en Sciences de Santé
NGO	Non-Governmental Organization
PLW	Pregnant Lactation Women
PM2A	Preventing Malnutrition under the Age of 2
PVO	Private Volunteer Organization
USAID	United States Agency for International Development
RUSFI	Read-to Use Supplementary Food I (USAID Product)
RUTF	Read-to Use Therapeutic Food
SC+	Super Cereal Plus
SAVE	Save the Children
ViM	Victory Against Malnutrition

## Tables and Figures

Table 1: IRSS and Save the Children impressions of food commodities in food acceptability taste tests. 10  
Table 2: Mother and child preference for food commodities in food acceptability taste tests..... 14  
Table 3: ViM program beneficiaries' self-reported likelihood to feed study foods to children..... 16  
Table 4: Number of participants who report that their children would eat the commodity foods every day ..... 22

Figure 1: Positive characteristics mentioned about commodity food preparations among ViM program beneficiaries..... 17

Figure 2: ViM program beneficiaries' reasons to feed commodity foods to their children after taste test ..... 18

Figure 3: ViM program beneficiaries' reported hypothetical methods for preparing or serving commodity foods ..... 21



Picture 1: A young boy stands in the middle of a group of women during a RUSF taste test in Toyende, Sanmantenga (December 2013). Photo taken by Nadira Saleh

## **Part I: Introduction and protocol for taste tests**

Consumer acceptability taste tests are part of Tufts University Friedman School of Nutrition Science and Policy for the United States Agency for International Development (USAID)/Food for Peace (FFP)-funded Food Aid Quality Review (FAQR) Phase II. FAQR Phase II is part of USAID/FFP's efforts to improve the nutrition and quality of the Title II food aid basket.

In 2011, USAID approved FAQR Phase I recommendations on improving food aid products to better meet the nutritional needs of beneficiaries. Tufts University is currently in the second phase of this review which recommended modifying the current Corn Soy Blend 13 (CSB13), one of the main U.S. food aid commodities, to include a dairy ingredient and an upgrade of the micronutrient premix as well as to ensure that beneficiaries prepare CSB consistently with fortified vegetable oil (FVO) in the recommended ratio of 3 FVO to 10 CSB. The FAQR report also recommended strengthening the evidence base for innovations in products and programming and testing the effectiveness and cost-effectiveness of any recommended program or commodity modifications.

The objective of these taste tests was to gain feedback from Title II beneficiaries about the taste acceptability of the four food aid products when distributed and prepared as recommended by FAQR-I. These taste tests were conducted in collaboration with ACDI/VOCA and SAVE in Burkina Faso, District of Sanmatenga.

The taste tests explored the taste acceptability of the following foods:

- 1) Corn Soy Blend 14 (CSB14) (with whey protein concentrate and enhanced micronutrient profile), prepared with FVO;
- 2) Ready-to use supplementary food 1 (RUSF1);
- 3) Super Cereal Plus (SC+) (has an enhanced nutrient profile, dairy ingredient (non-fat dry milk), and oil already embedded into the CSB);
- 4) Corn Soy Blend Plus (CSB+) (prepared with FVO)

### **a) Participants**

Prior to working with beneficiaries, taste tests and focus group discussions were conducted with Private Voluntary Organizations (PVOs) staff and project partners (IRSS and SAVE) to get feedback on the taste of the new products, understand staff experience with existing products, and to prepare for beneficiary taste tests (See Part II).

The beneficiary taste test participants included child-mother pairs who were consuming CSB as part of food aid rations they receive through the ACDI/VOCA and SAVE Title II ViM program. Mothers of any child in the target age range of 6-23 months who had started complementary feeding were eligible to participate. Approximately 10-15 women were recruited by ViM promoters at each site, totaling to 80-120 mother-child pairs (See Part III).

## **b) Taste Test and Interviews**

Each of the four foods was tested at two villages, in the same zones where those foods will eventually be distributed in the main study. The SAVE team was heavily involved in recommending the villages for taste tests. These villages were chosen based on four factors:

- i. They had enough children of complementary feeding age to recruit for a taste test
- ii. The two selected villages were geographically well separated to account for differences in regional preferences
- iii. The two selected villages were culturally/ethnically different to account for differences in cultural preferences (if applicable)
- iv. The two villages had not recently been visited by an outside group (to reduce beneficiary burden)

While some of the selected villages also had a distribution point linked to the village, the taste test was never conducted at the distribution point.

The sessions lasted between two to three hours total. Women were present for the preparation of the food, prepared in a communal pot by the field research coordinator and IRSS staff. The preparation of the food was consistent with the updated FAQR recommendations, with respect to ratios and oil and flour. In the case of RUSF taste tests, no preparation was required.

As pre-selected mothers arrived, they were asked verbally for their consent for participation for themselves and their beneficiary child, and if they agreed, they were included in the taste test and question session. The mothers were asked to taste a couple spoonfuls of the sample and feed the rest to their child. They were then pulled aside one at a time and were administered a short interview regarding the food that they and their child consumed (Interview guide included in Appendix A). Women were then invited to ask any questions and were thanked for their participation.

## **Part II: Observations and experiences from preparations of porridges**

With the exception of the RUSF, in all of the taste tests the ratio of flour to oil (10:3) and the corresponding recommended quantity of water was respected. During the first PVO taste tests with IRSS and SAVE, the research team also closely followed the instructions for preparation. However in subsequent beneficiary taste tests, with input from the PVO taste tests, the local enumerators and from SAVE staff, the methods of preparation were modified. This is both due to observations regarding the ease of preparation of the product and local taste preferences. These observations are summarized below:

### **Adding flour to boiling water**

The current instructions from the commodity requirement documents and WFP encourage adding water to a pot and bringing it to a boil to ensure water is sterilized, then stirring in the flour and bringing that mix to a boil.

This method did not work for the team's original preparation during the IRSS taste test, since the product does not dissolve well upon contact with boiling water and led to lumpy porridge. Instead, in subsequent taste tests, the team first mixed dry flour with a small proportion of the water, adding this to a pot and gradually adding boiling/boiled water, mixing well in between additions. This avoided lumps and allowed porridge to slowly thicken.

### **SC+ is lumpy**

Some local women use a perforated spoon to make porridge to help prevent lumps. While this was not especially necessary for the CSB and CSB14, the SC+ is a finer flour and is much more prone to lumps. In both taste tests of SC+, crushing lumps increased the amount of attention and time required to prepare the porridge. Using a perforated spoon for the preparation of the SC+ might be especially recommended for this porridge as well as recommendations to women to be especially attentive while preparing it.

### **CSB14 could be prone to insects**

Before conducting the taste tests, the research team pre-measured the flours to reduce time on site. Both the SC+ and CSB14 were pre-measured at the same time, put in clear plastic bags and tied with twist ties. Interestingly, both bags of the CSB14 became infested with weevils, while the SC+ was not. It is worth noting that the CSB14 taste tests were a day after SC+ and could have become infested during this time. This observation should be formally tested; but if there is a difference between the susceptibility to weevils and other insects, beneficiaries should be informed.

### **Adding oil at the end**

The current instructions recommend stirring in the oil after the porridge has boiled. The research team would like to reinforce this idea. In one of the preparations of CSB14 for beneficiaries, the team accidentally added oil while adding water to the CSB14. While women did not dislike the preparation, in subsequent preparations of CSB14 and CSB+, where the team was careful to add oil after the porridge had boiled, the oil taste was the highlight of the results. The difference in "oil-tasting" could also be due to the difference in the taste of the flour and the "milk" taste in the CSB14. However, it appears that the oil taste is still stronger where it is added at the end.

### **Porridge must "change color"**

The cooking instructions specify to bring the porridge to a boil and then to let the porridge simmer for 5 minutes. At times, our team left the porridge to boil/simmer for slightly longer; and a high specific heat capacity of the porridge meant that it did not cool quickly either. In our initial preparations for the SAVE team, we followed the instructions quite carefully and cooked the porridge for the minimum amount of time. However, we received several comments that the porridge "looked raw" or "tasted raw." Our enumerators (who were not present for the SAVE taste test) were sensitive to the porridge "changing color" when cooked and let it simmer longer and no comments were made about "raw porridge." Most beneficiary women also use color change as an indication of the porridge being ready.

### **Porridges are thick**

Along with changing color, the porridge should have an appropriate viscosity. Again, during the discussion with SAVE, we received several comments that the porridge was too light, especially for the SC+, which generally produces a lighter porridge than the CSB. With a longer cooking time during the beneficiary taste tests, the porridge preparations were much thicker and we received a lot of feedback from women that, in their own preparation, they would prepare thinner porridges. Thus, in addition to cooking time varying, the amount of water may also have to be increased to account for longer cooking.

**RUSF is difficult to consume in one sitting**

During both the IRSS and SAVE taste tests, the majority of participants opted to share a sachet of RUSF, rather than to consume one on their own. Bearing this in mind, to avoid waste during the beneficiary taste tests, the team asked women to open the packet, try some of the product herself and give the rest to her child. Even then, the enumerators noted that only half the children were able to finish the sachet in that sitting.

**Part III: Results from taste tests with IRSS and SAVE**

During the IRSS and SAVE taste tests, the team prepared each of the foods and gave the small group samples of each in succession. These taste tests were conducted the week preceding the beneficiary taste tests and helped inform changes to preparation, cooking time, scheduling, etc.

The IRSS taste test consisted of the IRSS primary nutrition unit (3 members) and the enumerators who would assist during the taste tests (3 enumerators). The Save the Children tests included the Health and Nutrition Coordinator, the head of the M&E department, the Social and Behavior Change Expert, all 5 supervisors and 5 promoters who were responsible for the villages in which the taste tests were conducted. Between the two teams, there were a total of 19 participants.

Table 1 provides some of the results from the respondents' self-administered questionnaires. The table highlights the number of responses for each rating category that IRSS and Save the Children staff provided for how well they liked each food product, as well as a hypothesis to how well beneficiaries would respond to the food. The results below do not include CSB+ since it was not available during these taste tests.



Picture 2: Members of the Save the Children team rate the taste of CSB14 in Kaya, Burkina Faso (December, 2013) Photo taken by Nadira Saleh

**Table 1: IRSS and Save the Children impressions of food commodities in food acceptability taste tests**

	Like strongly (score=5)	Like somewhat (score=4)	Neutral (score=3)	Dislike Somewhat (score=2)	Dislike Strongly (score=1)	NR	Total	Average Rating
<b>CSBI4</b>								
Personal impression	0.0% (n=0)	73.7% (n=14)	21.1% (n=4)	0.0% (n=0)	0.0% (n=0)	5.2% (n=1)	100% (n=19)	3.78
Perception of beneficiary preference	5.2% (n=1)	52.6% (n=10)	21.1% (n=4)	5.2% (n=1)	0.0% (n=0)	15.8% (n=3)	100% (n=19)	3.68
<b>SC+</b>								
Personal impression	15.8% (n=3)	47.4% (n=9)	21.1% (n=4)	5.2% (n=1)	0.0% (n=0)	10.5% (n=2)	100% (n=19)	3.82
Perception of beneficiary preference	10.5% (n=2)	52.6% (n=10)	15.8% (n=3)	5.2% (n=1)	0.0% (n=0)	15.8% (n=3)	100% (n=19)	3.81
<b>RUSF</b>								
Personal impression	57.9% (n=11)	31.6% (n=6)	5.2% (n=1)	0.0% (n=0)	0.0% (n=0)	5.2% (n=1)	100% (n=19)	4.56
Perception of beneficiary preference	63.2% (n=12)	26.3% (n=5)	5.2% (n=1)	0.0% (n=0)	0.0% (n=0)	5.2% (n=1)	100% (n=19)	4.61

With all products, the majority of respondents rated the products as “liked strongly” or “liked somewhat” for both their own impression and their prediction for beneficiary appreciation. That said, the average scores for the RUSF are comparatively much higher than either porridge preparation (4.56 versus 3.78 CSBI4 and 3.82 SC+ for personal impressions). For the CSBI4 and SC+, the score bracket with the greatest number of responses was “liked somewhat.” There was little difference between the respondents’ perception of the foods and their prediction for the beneficiaries.

**a) IRSS and Save the Children Responses from self-administered questionnaire on sensory characteristics of each food**

**CSBI4**

Respondents appreciated the color of the porridge (n=7), and did not see a great difference from the porridge already distributed. There were no negative comments regarding the look of the porridge. Conversely, without any added sugar and salt, respondents found the porridge to be very bland (n=14). They thought the porridge was a good base that could be adapted, and many directly stated that it needed sugar (n=9). The respondents during the IRSS taste test found the texture correct for porridge. However, those present for the SAVE taste test found the texture to be too liquidy/thin, with some grains that were not fully cooked.<sup>1</sup>

<sup>1</sup> The porridge may not in fact have been well cooked that day. This was corrected for the beneficiary taste tests.

## **SC+**

The results for the SC+ were similar to those of CSB14. The SAVE respondents noted the lighter color of the porridge, and while some found the lighter color appealing, resembling a local pearl millet porridge, others said it looked undercooked (n=3). Whereas, for the IRSS taste test, the respondents found the appearance to be appealing. Participants in both groups found the porridge to be bland, with a “milky taste” but lacking a taste of oil. They respondents enjoyed both the texture and odor, but thought the texture could be thicker and less lumpy.

## **RUSF**

Both IRSS and SAVE teams enjoyed the appearance of the RUSF. Many also enjoyed the taste (average rating of 4.55), but a couple found it a bit too sweet or salty (n=4). They found the texture to be heavy and thick, which some individuals did not enjoy, but three respondents reported enjoying. They reported that the product quickly satiated them, and that they were thirsty after eating it. They also said it resembled a local preparation and that it would be accepted by beneficiaries.

### **b) Responses from IRSS and SAVE group discussions**

After the staff members had tried each of the three foods (CSB+ was not available for tasting), a small group discussion was conducted to further explore hypothesized beneficiary reactions to the products. The staff members were asked if beneficiaries would like any of the foods better than what they were currently receiving. Overwhelmingly, the participants asked if it was possible to add sugar or salt. With the addition of these ingredients, the taste would be improved and would be better accepted.

They also stated that oil modifies the taste immensely. And that in the SC+, the taste of oil wasn't present, and therefore might not be accepted. They found the SC+ to be very light, yet lumpy; a concern since when cooled, the lumps could become gluey and difficult to swallow. They also added that the SC+ was saltier and looked like “white sand,” as if it was undercooked. They worried that the porridge did not change color and therefore as a result, they hypothesized that the CSB14 and RUSF would be better accepted over the SC+.

In contrast, they found the color of the CSB14 agreeable, but they found there to be small black particles in the flour.<sup>2</sup> They mentioned that these might be interpreted as dirty by beneficiaries.

Regarding the RUSF, the SAVE team worried that pregnant and lactating women consuming the RUSF would not want to give it up when the distribution shifted from mothers to children of 6 months. That said, members of both teams worried that pregnant and lactating women would have difficulty consuming the food due to how sweet and thick it was. Even during their own taste tests, they chose to share sachets of RUSF between two people, rather than consume a full sachet themselves (though there were some who consumed the whole sachet). They mentioned that RUSF closely resembles PlumpyNut and in some regions where PlumpyNut is distributed, it is viewed positively. They also mentioned that it resembled a local sweet that is considered a treat, making it acceptable, but also meaning that it would not “fill the stomach” like a meal; the purpose which the CSB+ currently serves. Lastly the teams highlighted that the risk of sharing is not entirely avoided since children may share such a product amongst themselves.

---

<sup>2</sup> These were not insects, but some sort small, dark, husk by-product present in all the samples. Whether this is present in all raw CSB14 flour needs to be verified.

The SAVE group was asked if women would have difficulty following the new FAQR recommendations, for example, the greater ratios of oil to CSB+ and CSB14, no added oil for SC+ and a sachet of RUSF instead of porridge. The group expressed that women would not have difficulty preparing the products provided they are given local measure equivalents that reflect the recommended portions and proportions of ingredients. They also recommended training/education on how to prepare SC+ because women may be anticipating more of a color change from the flour, which may not be apparent given its lighter color. New recipes will have to be adapted to make SC+, since many women use the oil to make couscous from CSB+. They also reinforced that women will add sugar to be accepted, and oil will likely be added to SC+.

## **Part IV: Results from taste tests with beneficiaries**

### **a) Preparation/Observation**

Beneficiary taste tests were conducted between December 9-13, 2013, with one product tested in two villages per day. Bearing in mind the feedback from the PVO taste tests regarding a risk of undercooked porridges, each porridge was allowed to boil and simmer for several minutes before cooling and serving. Timings of the taste tests were consistent such that each product was tested in the morning in one village, and in the afternoon in the second village. Participation in the taste tests was high with at least 11 mother-child pairs at each site. In general, the team found that the product (including the RUSF) was more quickly and fully consumed in the morning sessions than in the afternoon sessions. The results from the beneficiary taste tests are grouped below by food product

#### **CSB+**

The CSB+ was tested in the villages of Tamdogo and Kowedogo. Both have similar demographic characteristics (predominantly Mossi) and both had 15 mother-child pairs participate (n=30). The preparation of the porridge was well received by both the mothers and children. The mothers seemed to enjoy the porridge, and there was little refusal from the children.

#### **CSB14**

The CSB14 taste tests were conducted in Foubé and Namissiguima with 12 pairs in Foubé and 11 pairs in Namissiguima (n=23). The decision to include these villages centered on the fact that Foubé is one of the largest distribution sites which also becomes inaccessible during the rainy season. Namissiguima, another large distribution site 60 km away, might have different characteristics and was also included. During the morning taste test, both the mothers and children quickly and easily consumed the porridge. Due to transportation difficulties, the afternoon taste test started late, and while the taste test was mostly well received, there were two or three children who did not finish their porridge at the end of the test. The team hypothesizes that this could have been because of fatigue of the participants.

#### **SC+**

The SC+ was tested in the villages of Tangasgo and Dahisima. There were a mix of ethnicities in the area; though predominantly Mossi, there were some Peulh as well, and all respondents spoke either Mooré or Dioula. During the morning session (n=16), both the mothers and children consumed the porridge easily, completely emptying the cups. The team noticed that the afternoon session (n=16) consumed all of the porridge as well, though they were slower to do so than the morning group.



Picture 3: Women in the village of Khamse Peulh feed their children RUSF with their hands. (December 2013). Photo taken by Nadira Saleh

## RUSF

RUSF was tested in Toyende and Kamse Peulh, two villages 40km from each other. Kamse Peulh has a strong Peulh representation, which the team thought important to include given their potential to have a difference in tastes from the Mossi majority. The Toyende taste test included 14 pairs, as did Kamse Peulh (n=28 in total). In both taste tests, women shared an RUSF packet with their child. Enumerators observed that the mother either fed the child by giving squeezing some of the RUSF onto her fingers and putting it in the child's mouth or the mother gave the packet to the child to consume directly. Few children were able to finish the packet. After this point, the mothers ate the rest of the RUSF directly from the packet. At the end of both taste tests, half of the packets distributed still had RUSF remaining.

### b) Results from Interview

#### 1) General impressions of the food and characteristics disliked

Table 2 below highlights the number of responses for each rating that mothers gave for how well they liked each food (a Likert scale of 1 to 5). They were also asked to provide the same assessment of how well they perceived their children to like the foods. Average ratings of the mother's impressions and the child's impression are included for each food.



Picture 4: A study team enumerator carries samples of CSB14 to beneficiary women in Namissiguima, Burkina Faso (December 2013). Photo taken by Nadira Saleh

**Table 2: Mother and child preference for food commodities in food acceptability taste tests**

	Like strongly (score=5)	Like somewhat (score=4)	Neutral (score=3)	Dislike Somewhat (score=2)	Dislike Strongly (score=1)	Total	Average Rating
<b>CSB+</b>							
<b>Mother</b>	63.3% (n=19)	33.3% (n=10)	0.0% (n=0)	3.3% (n=1)	0.0% (n=0)	<b>100% (n=30)</b>	<b>4.57</b>
<b>Child</b>	93.3% (n=28)	3.3% (n=1)	3.3% (n=1)	0.0% (n=0)	0.0% (n=0)	<b>100% (n=30)</b>	<b>4.90</b>
<b>CSB14</b>							
<b>Mother</b>	65.2% (n=15)	34.8% (n=8)	0.0% (n=0)	0.0% (n=0)	0.0% (n=0)	<b>100% (n=23)</b>	<b>4.65</b>
<b>Child</b>	73.9% (n=17)	21.7% (n=5)	4.3% (n=1)	0.0% (n=0)	0.0% (n=0)	<b>100% (n=23)</b>	<b>4.70</b>
<b>SC+</b>							
<b>Mother</b>	56.2% (n=18)	43.8% (n=14)	0.0% (n=0)	0.0% (n=0)	0.0% (n=0)	<b>100% (n=32)</b>	<b>4.56</b>
<b>Child</b>	71.9% (n=23)	28.1% (n=9)	0.0% (n=0)	0.0% (n=0)	0.0% (n=0)	<b>100% (n=32)</b>	<b>4.72</b>
<b>RUSF</b>							
<b>Mother</b>	56.2% (n=18)	43.8% (n=10)	0.0% (n=0)	0.0% (n=0)	0.0% (n=0)	<b>100% (n=28)</b>	<b>4.64</b>
<b>Child</b>	60.7% (n=17)	35.7% (n=10)	0.0% (n=0)	3.6% (n=1)	0.0% (n=0)	<b>100% (n=28)</b>	<b>4.54</b>

**CSB+**

The CSB+ had high average ratings among both mothers and children (4.57 and 4.9, respectively). When asked about the factors they *did not* like about the food, and prompted for characteristics such as appearance, texture, taste and odor, the vast majority of mothers said they liked the CSB+ entirely (86.7%, n=26). Of the few who reported factors that they did not like, they mentioned a bland taste (n=1), a need for sugar (n=1), a difficulty in swallowing the food (n=1) or a milky taste (n=1).

**CSB14**

Overwhelmingly, women scored the CSB14 as either strongly liking it (n=15) or liking it somewhat (n=17). They reported similar responses from their children, with 73.9 percent liking it strongly (n=17), and 21.7 percent liking it somewhat (n=5). Only one respondent reported to have a dislike for the food, noting the bland flavor of the food, stating that it needed either salt or sugar.

## **SC+**

All of the mothers ranked the SC+ as either liking it strongly (n=18) or liking it somewhat (n=14). They gave similar, but slightly higher scores for their children liking the SC+, with an average rating of 4.72 in comparison to their own 4.56. Of the 32 respondents, 12 mentioned factors that they did not like about the food. Included among the characteristics were: lack of sugar (n=7), lack of salt (n=3), lack of oil (n=1), bland porridge (n=1), porridge too liquid (n=1) and lumps in the porridge (n=1).<sup>3</sup>

## **RUSF**

As with the porridge preparations, the RUSF received a high average rating among both mothers and children (4.64 and 4.54, respectively). Nearly all of the children were perceived to either like the porridge strongly or somewhat (60.7% and 35.7%, respectively). One child did not like the taste of the RUSF and refused to eat it. When asked what they did not like about the RUSF, four women mentioned characteristics that they did not enjoy, including, too much sugar (n=4) and too much fat (n=1).<sup>4</sup> The other 24 participants (85.7%) reported that they liked the RUSF entirely.

### **II) Characteristics enjoyed in each food**

When asked about the characteristics the mothers enjoyed about the food they had tasted, given the same prompts for odor, texture, taste, etc.), the mothers provided a variety of responses. Figure 1 highlights some of the common factors and the frequencies with which they appeared in the responses for each food. Each factor highlighted in Figure 1 appeared at least three times in the taste test responses for that food. Note that women may have mentioned several reasons for liking the food, and others only a few factors; thus the frequencies are not necessarily correlated with the number of respondents.

## **CSB+**

In the CSB+ taste tests, the most commonly mentioned factor that respondents appreciated about the porridge was its oily flavor (n=16). They also noted the tastes of flour (n=4), milk (n=3), sugar (n=3), as well as the smell of the porridge (n=4) and the color (n=4).

## **CSB14**

Similar to the CSB+, the most frequently positive characteristic women mentioned about the CSB14 was the taste of oil (n=10). They also reported several “smell factors,” including the smell of peanut (n=2), oil (n=2), fish (n=1), soumbala (n=1), milk (n=1), or the general odor (n=2). During the preparation of the porridge, the participants in both groups mentioned a pleasant bean/nutty smell coming from the porridge that was unlike what they had smelled before.

## **SC+**

Unlike the other two porridge preparations, the characteristic most mentioned about the SC+ porridge was its color (n=9). The second most mentioned characteristics was the smell of the porridge (n=8), followed by the taste of milk (n=6), the overall taste (n=5) and the aftertaste (n=3).

## **RUSF**

---

<sup>3</sup> Note that some respondents mentioned more than one factor

<sup>4</sup> One mentioned two factors.

Participants reported to like the peanut taste of the RUSF (n=16). They also enjoyed the taste of the sugar (n=11), the taste of salt (n=9), a milk-like taste (n=6) and the smell of peanuts (n=5).

### III) Likelihood and motivations for feeding food to child.

After tasting the food, each woman was asked about the likelihood that they would feed the food to their children. Table 3 below describes the reported likelihood on a scale from 1 (very unlikely) to 5 (very likely), that women expressed about their willingness to feed the food to their child.

**Table 3: ViM program beneficiaries’ self-reported likelihood to feed study foods to children**

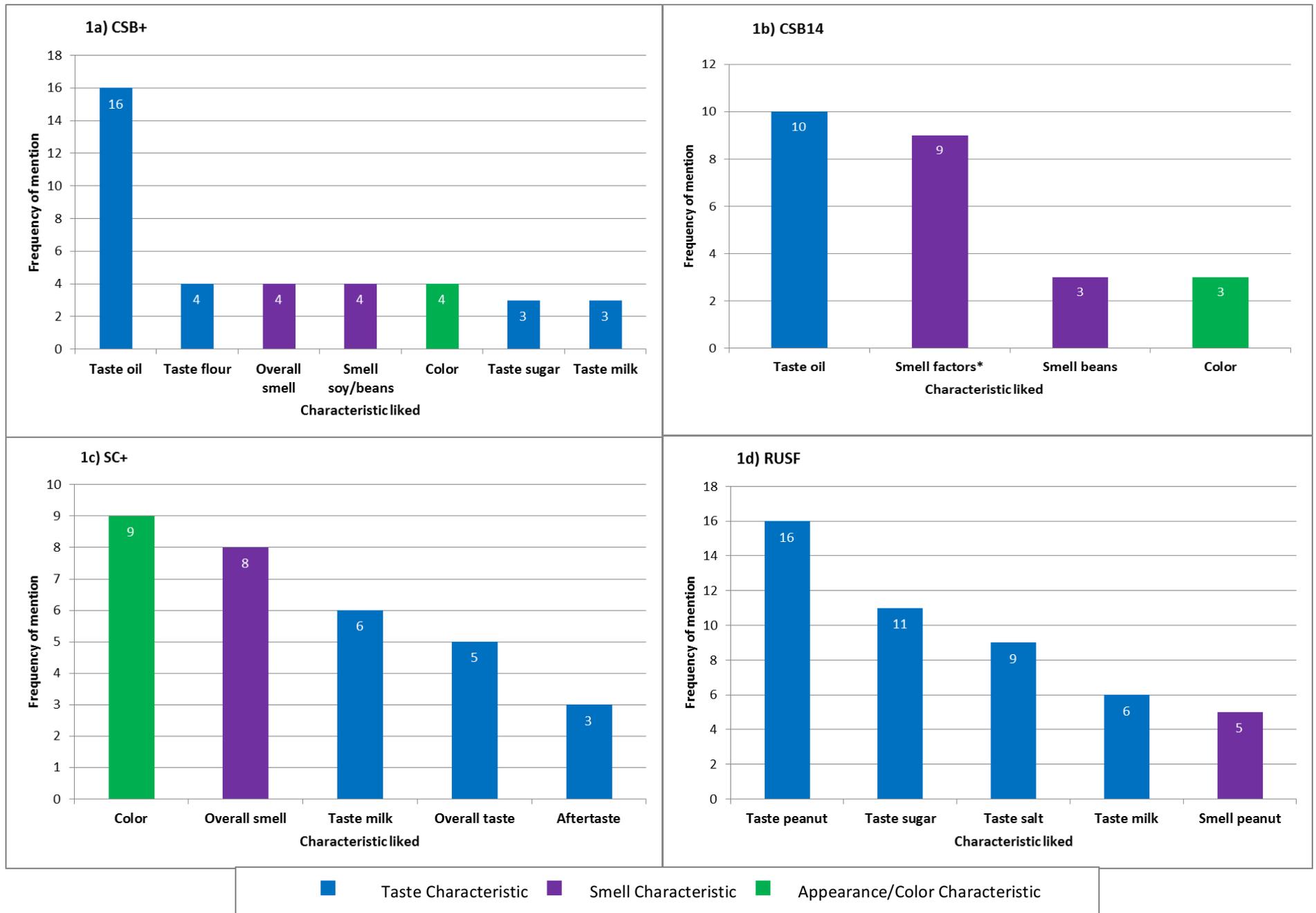
Food Tasted	Very likely (score=5)	Likely (score=4)	Maybe (score=3)	Unlikely (score=2)	Very unlikely (score=1)	Total	Average Likelihood
CSB+	93.3% (n=28)	6.7% (n=2)	0.0% (n=0)	0.0% (n=0)	0.0% (n=0)	100% (n=30)	4.93
CSB14	91.3% (n=21)	8.7% (n=2)	0.0% (n=0)	0.0% (n=0)	0.0% (n=0)	100% (n=23)	4.91
SC+	100% (n=32)	0.0% (n=0)	0.0% (n=0)	0.0% (n=0)	0.0% (n=0)	100% (n=32)	5.00
RUSF	96.4% (n=27)	3.6% (n=1)	0.0% (n=0)	0.0% (n=0)	0.0% (n=0)	100% (n=28)	4.96

For each product, women reported a high likelihood to feed their child the study food. For CSB+, 93.3 percent of respondent women (n=28), said they were “very likely” to feed their child the study food. CSB14, SC+ and RUSF all comparable results with 91.3, 100 and 96.4 percent of women also reporting to be very likely to feed the respective study foods to their children. These correspond in high average reported likelihood to feed their children the study foods; between 4.91 and 5.

Building on the previous question, when asked about the motivation for which a respondent mother would or would not feed her child each food, the participants provided a variety of responses. These responses are summarized below for each product and in Figure 2. Since all mothers reported positive likelihoods for feeding their children the study foods, Figure 2 summarizes their motivations, rather than disincentives. The responses included in Figure 2 were mentioned at least three times for the study food that was tasted. These factors were often compounded, for example one mother responded that she would feed the CSB+ to her child because it “contained vitamins which provide strength and vitality.” This response reinforces that the mother believed that the CSB+ had nutritional qualities that then made her child stronger, and both reasons were included. It is important to note some of the reasons could be synonymous, but were considered to be different enough in this analysis to merit separate categories. For example, the term “en forme” in French could represent a child being healthy, strong, a healthy weight or ideal height. Since these are difficult to delineate, “en forme” is considered its own category and is described as “good physical shape.”

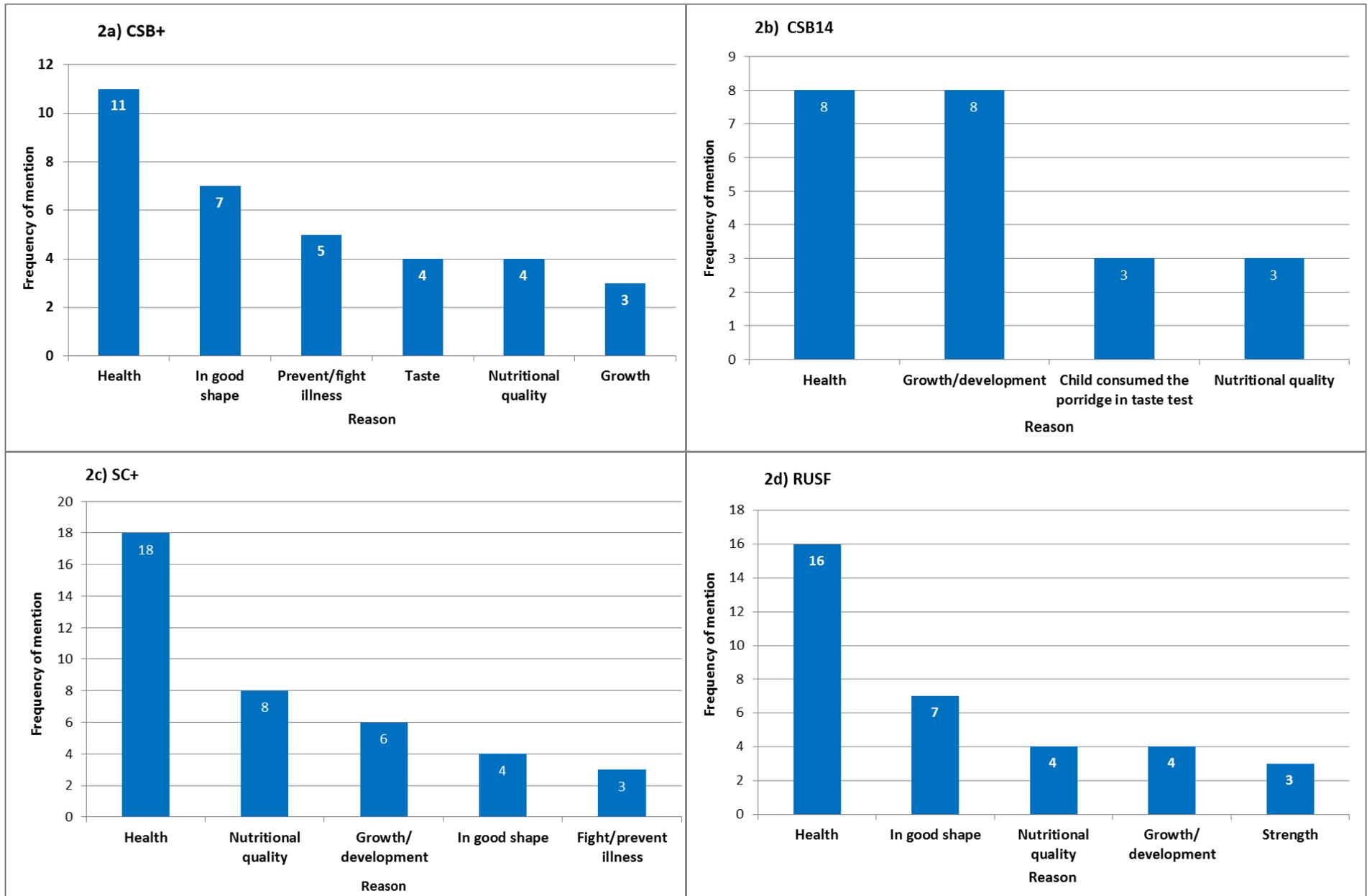
ViM BENEFICIARY TASTE TESTS OF TITLE II FOOD AID PRODUCTS

Figure I: Positive characteristics mentioned about commodity food preparations among ViM program beneficiaries



ViM BENEFICIARY TASTE TESTS OF TITLE II FOOD AID PRODUCTS

Figure 2: ViM program beneficiaries' reasons to feed commodity foods to their children after taste test



### **CSB+**

Women tended to cite health as a primary reason to feed their children CSB+ (n=11). Also among the top responses were also the child being in good physical shape (n=7) and the porridge helping the child to fight/prevent illness (n=5). Some of the less common reasons for feeding the porridge included strength for the child (n=2), and due to the fact that the child breastfeeds less and needs porridge to continue to grow (n=1)

### **CSB14**

A large fraction of the 23 women who tasted CSB14 reported either growth (n=8) or health (n=8) as motivating factors to feed the food to their children. Three women mentioned that the porridge had nutritional qualities, and an equal number cited that because the child had consumed the porridge during the taste test, they would feed it to them at home (n=3). Less commonly mentioned reasons included the fact that the porridge was palatable for the child (n=2), that maternal milk was no longer sufficient (n=1) and that the child was of “porridge-drinking” age (n=1).

### **SC+**

Among the 32 respondents, prominent reasons for feeding the SC+ to their children included the child’s health improvement with the consumption of the food (n=18), the nutritional quality of the porridge (n=8), for their child to grow/develop (n=6), the child being in good physical shape (n=4) or to fight/prevent illness (n=3). Less frequently mentioned responses were that the porridge was palatable (n=2), that it was fed because breast milk was insufficient (n=1) and that it provided strength (n=1) and energy (n=1)

### **RUSF**

As with the porridge preparations, a large portion of the mothers reported wanting to feed the RUSF to their children to make them healthy (n=16). Following health, mothers reported that the RUSF would allow their child to get in good shape (n=7), that it contained nutrients (n=4), that it would allow their child to grow or develop (n=4) or become stronger (n=3). Less commonly mentioned motivation in this group included the ability of the RUSF to fight prevent illness (n=2) and its taste (n=1).

#### **I) Beneficiary mothers’ recipe instructions**

In addition to understanding the taste acceptability of the food served to them, the taste tests had secondary goals understanding beneficiary womens’ taste preferences and some of their behaviors in preparing the foods. Included in this assessment was a question about how women would prepare the food at their own home. The question was open ended, but participants were prompted for examples of texture and taste (i.e. thicker, thinner, add sugar or salt, cook longer, serve cooler, add more oil/less etc.).



Picture 1: A study team enumerator asks a beneficiary mother about her reactions towards the food she and her child have sampled (December 2013). Photo taken by Nadira Saleh

Figure 3 aggregates women's responses for each food with respect to how they would prepare their foods at home. As with any recipe, each individual had a distinct method and product in mind, influencing the ingredients they used and their preparation. Thus, an examination of individual ingredients, tastes and textures should be assessed with care. Some responses tended to appear in pairs, such as "adding some salt and sugar," which have been delineated here. The responses do not necessarily make reference to the porridge the women were served. In most cases, instead of criticizing the porridge they tasted, they provided a recipe of how they would prepare the flour/how they would serve the RUSF. The exception to this is the texture of the porridge, where women would often use the porridge they tried as a reference point to explain the ideal viscosity/feel they search for in their preparations.

#### **CSB+**

The responses aggregated in Figure 3a highlight how women commonly said they would like add a little sugar (n=18) and/or salt (n=12) in their preparation of CSB+. They also commonly mentioned adding oil (n=18), and of those who mentioned adding oil, four specified that they would add it during preparation. Other responses included serving it colder and thinner (n=10 and n=6, respectively), adding shea butter (n=3) or making couscous instead of porridge (n=3). When women make couscous, they specified that they do so by adding salt and oil to the preparation.

#### **CSB14**

As with the CSB+, women reported adding oil (n=12), sugar (n=12) and salt (n=11) to their preparations of CSB14. They also reported that they would add shea butter, and would like the porridge to be less thick than what they were served (n=3). Interestingly, three women would make it exactly as prepared (without salt or sugar, but still with oil).

#### **SC+**

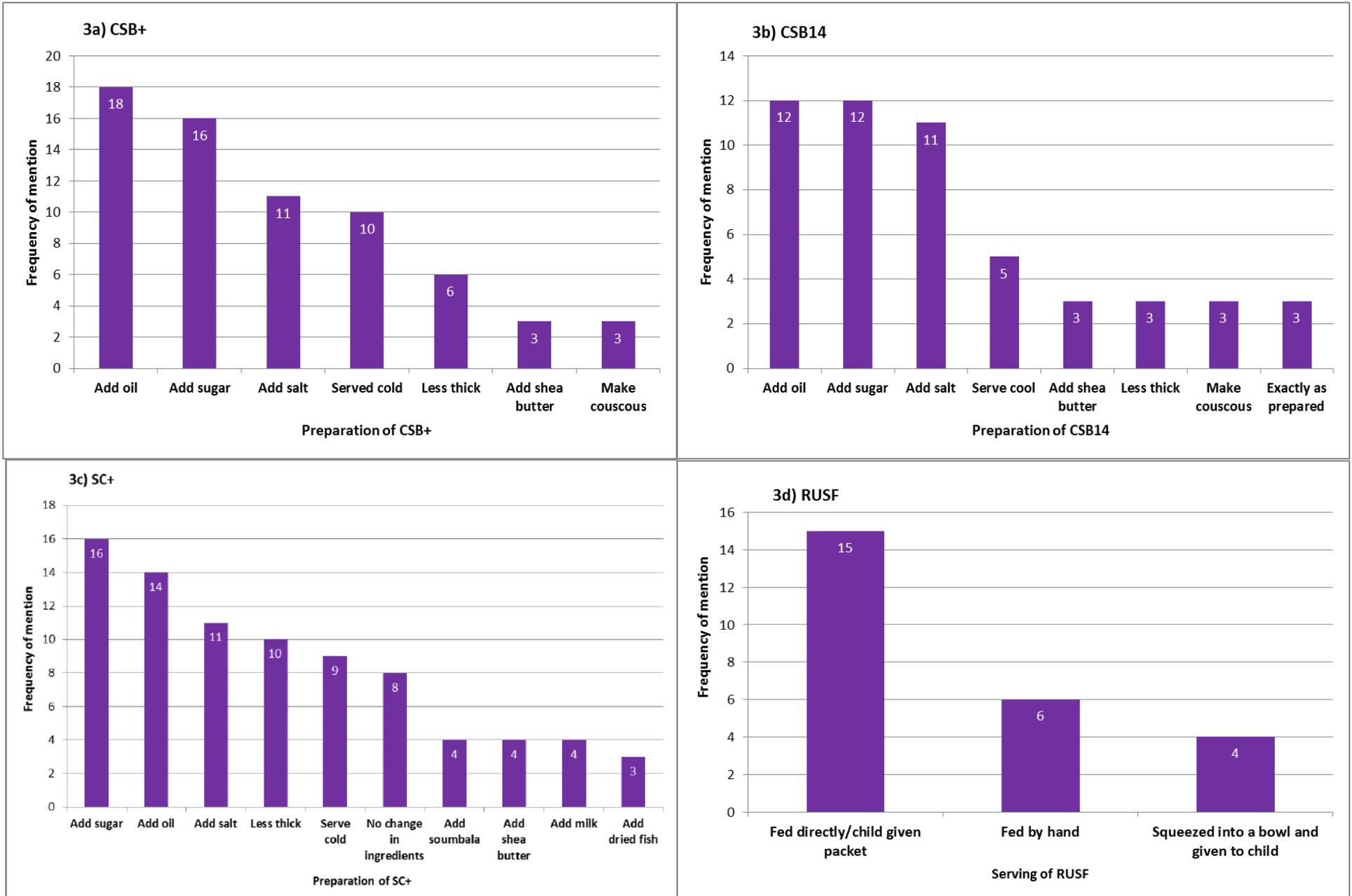
Similar to the other porridge preparations, women reported adding sugar (n=16), oil (n=14) and salt (n=11) to their preparations of SC+. They also found the porridge to be thick (n=10), as in the other preparations. Between the two taste tests, eight women reported that they would not change the ingredients of the preparations that they were served. The women in this group noted that they would like to learn how to prepare this food for their children.

#### **RUSF**

Since the RUSF does not require preparation, respondents were asked how they would serve the product to their children and whether they would add anything to the product. Fifteen respondents said they would give the sachet to their child directly, while six said they would feed their child with their own hand. Others said they would squeeze the product into a bowl and give that to the child to facilitate consumption (n=4). Less frequent answers included mixing the RUSF into a porridge (n=1), adding hot water to make it less viscous (n=1) and stirring in milk (n=1).

VIM BENEFICIARY TASTE TESTS OF TITLE II FOOD AID PRODUCTS

Figure 3: ViM program beneficiaries' reported hypothetical methods for preparing or serving commodity food



### **Part V: Notes and limitations**

Although the beneficiary taste tests were successful at shedding light on the taste acceptability of commodities, they nonetheless had their limitations. Despite testing the products in two villages for each study arm, the sample included in the taste tests was still a fraction of the beneficiaries in the study. In addition, the selection of both the taste test villages and their participants were not random. Thus the results collected here may not be entirely generalizable to the entire study population.

Furthermore, the quantities of porridge prepared in the taste tests were much larger than what would be prepared by women at their homes. While the recipe was consistent with the FAQR recommendations, a larger quantity of porridge could have been more prone to lumps or could have had a longer cooking time. These factors may have changed the taste or texture of the porridge from what it might be in the mothers' homes, also skewing the applicability of the results.

Although pregnant and lactating women are beneficiaries in the ViM program, they were not the focus of this activity. Instead, the interview questions focused on children of complementary feeding age and their mothers' behaviors, since children's growth is the focus of the greater study. It also did not ask participants to compare the food that they tasted to the CSB+ that they prepare normally. While it would have been interesting to understand any differences in preparation, the goal of the taste tests was to capture the acceptability of one particular product, not to understand preference between products.

One of the questions asked in the interview was, "If you had enough of [food being tested] would your child eat it every day?" The intended interpretation of this question was to understand if the *child would accept* to eat the food every day. Unfortunately, due to poor wording and/or misunderstanding of the question in translation, the question appears to also have taken on an interpretation of whether the *mother would feed* the food to the child every day. Answers to both interpretations are apparent in the responses, but cannot easily be interpreted due to the vagueness of the question. Nonetheless, for each food, between 95% and 100% of respondents said that their child would eat the product every day, as highlighted in Table 4.

**Table 1: Number of participants who report that their children would eat the commodity foods every day**

<b>Food product (Total number of participants)</b>	<b>CSB+ (n=30)</b>	<b>CSB I 4 (n=23)</b>	<b>SC+ (n=32)</b>	<b>RUSF (n=28)</b>
Child would eat food everyday	100% (n=27)	95.7% (n=22)	96.9% (n=31)	96.4% (n=27)

## **Part VI: Summary and conclusion**

The consumer tests revealed high taste acceptability for all four study foods. Each food had an average rating between 4.54 and 4.9 on a scale of 1 (dislike strongly) to 5 (like strongly).

Close attention needs to be paid towards recipe development since women consistently found porridges to be too thick, and in the case of SC+, too lumpy. The training material from Save the Children and some taste test responses revealed alternative methods to prepare porridges that should be examined when creating training tools with the new foods. Other observations regarding timing of adding ingredients, consistency, texture of the prepared porridge and women's instruction on how they would rather consume it will also inform future recipe development and education with the installment of the study foods.

Interestingly, respondents reported a strong liking for the taste of oil. In the two porridge preparations where oil was added (CSB+ and CSB14), the taste of oil was overwhelmingly the most appreciated. In the SC+, where no oil was added, women preferred instead the color of the porridge. The sharing of oil for other household uses has been raised as a concern by stakeholders, yet women consistently reported that they would add it to their porridge during its preparation. This is an issue that will be closely followed in the duration of the study.

Also interesting was the fact that women consistently mentioned similar motivations for feeding their child the commodity foods. In their briefing about the study and during the informed consent, women were informed about the safety of the foods, and that they do not pose any risk. However, they were not instructed on the benefits of the foods or their nutritional composition. Nonetheless, women in all groups described the fact that foods were healthy or that they contained vitamins that would help their children grow and develop, among other reasons. These responses could highlight the association that beneficiaries have with the ViM programs and how they view commodity foods.

Mothers also frequently mentioned that they would add sugar and salt to their porridge preparations. Several mentioned that these ingredients would be necessary for the food to be palatable. This is of interest for the FAQR study since each study arm is meant to be isocaloric, and the addition of sugar and other ingredients could modify the caloric intake of children in the CSB+, CSB14, SC+ arms. These preferences will need to be examined during recipe development such that the food continues to be appetizing to beneficiaries, yet does not compromise the caloric equivalency across study arms.

These observations and results will serve to inform future programming and messaging for both the ViM team and Tufts team as the study moves into the implementation phase. The high acceptability ratings of all of the products may reassure both teams going forward that the study foods are unlikely to be rejected on the basis of taste. The team was able to inquire and observe women's preferences for texture and feeding styles, which will further enlighten recipe development and beneficiary education. For example, the incorporation of oil in SC+ may need to be reinforced, given women's preferences and habits to add oil to porridge. Similarly, noting that women use their hands to feed younger children RUSF, handwashing should be reinforced for this group to limit disease transmission. Also, it appears that for all of the porridge preparations served by the study team, women generally found the porridges to be too thick. In addition to finding an ideal ratio of water to add to the flours, the teams will have to find local measurement equivalencies for all recipes.

## VIM BENEFICIERY TASTE TESTS OF TITLE II FOOD AID PRODUCTS

Insight into current behaviors will help the study team tailor their research tools and may begin to shed light on which foods are most easily accepted by beneficiary mothers and children. Integrating these observations and results will help to ensure better education of the study foods prior to, and during the study implementation.