



Moms' Attitudes and Beliefs Related to Fruit & Vegetable Consumption
2007-2015



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Executive Summary

As part of a comprehensive research plan for Fruits & Veggies—More Matters, PBH conducted a baseline survey in 2007 and subsequent annual follow-up surveys to identify psychosocial factors associated with fruit and vegetable consumption of moms and their behavior with their families.

Baseline results indicated that moms value the importance of fruits and vegetables in the diet, believe that as a mom it is important to include them in family meals, and say that they intend to do so, although few thought it would be easy. The most common barriers were different likes and dislikes of family members, and difficulty including fruits and vegetables when at restaurants. Respondents also said it was more difficult to include fruits and vegetables at meals where they are not traditionally served, when away from home, and in the context of their everyday responsibilities. Highlights since 2007 include:

Women Continue to Have Strong Beliefs About Fruits and Vegetables

Moms continue to appreciate the importance of fruits and vegetables in the diet, and recognize the relationship of fruit and vegetable consumption to health and well-being. Attitudes toward including more fruits and vegetables are very positive, and the majority of moms say they need to, want to, and intend to include more in their family's meals and snacks. Over time, however, these values have softened. More moms have come to believe their families eat enough fruit and vegetables and a slight reduction in motivation to serve them to her family can be seen. Moms continue to say that they can include fruits and vegetables in meals and snacks if they wanted to. However, fewer say that it will be easy and that it is more of a chore.

Lower Income Moms More Challenged

Lower income moms do not believe it is as important to include fruits and vegetables in family meals and snacks compared to those with higher incomes. They also report that fewer parents like them do so and that fewer spouses believe it is important. Compared to higher income moms, they are also less likely to say that they could include more fruits and vegetables in meals and snacks and are not as interested in knowing how to prepare them in new ways.

School Meals are Important

In 2015, moms reported that it was significantly easier to get her family to eat fruits and vegetables at school compared to 4 years earlier. Furthermore, half of moms agreed that the addition of fruits and vegetables in school meals or snacks has positively impacted their child's fruit and vegetable consumption.

Convenience is Important

More than half of moms say that convenient, prepared fruits and vegetables in single-serve snack sizes help to get servings of fruits and vegetables into their child's diet, with nearly as many wishing there were more convenient, prepared forms available. Restaurants and quick service restaurants offer more convenient fruit and vegetable options today than in 2007, and moms have reported steady improvement over time in the ease of getting her family to eat fruits and vegetables at these locations. Moms acknowledge that changes in restaurants and children's meals at fast food restaurants have positively impacted their child's fruit and vegetable consumption.

Perception of Healthy

Despite the health benefits of eating more fruits and vegetables, however, canned, dried, and frozen fruit and vegetables are not perceived by moms as healthy as fresh. In fact, moms' view that frozen, 100% juice, dried, and canned fruits and vegetables are less healthy than fresh produce has continued to grow over time. It should be noted that the perception of canned and dried fruits and vegetables improved in 2015, but not significantly. The perception of juice as healthy has continued to decline. Moms are also significantly less likely to believe in the disease-preventing benefits of fruits and vegetables in 2015 compared to earlier years. If behavior is indeed influenced by the perceived outcome of the behavior, then this declining belief in the health benefits of various forms of fruits and vegetables does not bode well for an increase in total fruit and vegetable consumption in the future.

Dads Could Help More

Moms report that the support she needs, but doesn't currently receive, to help increase fruit and vegetable consumption, is more support from their husbands. Other key barriers are different likes and dislikes of family members. Mothers will prepare only those fruits and vegetables that the family likes which may limit the variety served. Conflict with family members over eating or even just trying a fruit or vegetable may seem overwhelming. At the very least, dads should not work against moms' efforts to encourage greater fruit and vegetable consumption. Providing support, encouraging perseverance, and offering practical suggestions, can assist moms in their efforts.

Communications Methods

Moms report that signs on supermarket displays and in supermarket flyers/newspaper ads rank higher than television, and much higher than radio, internet advertisements, billboards, and social media in terms of which communication method they find most effective when it comes to making a food decision. Moms rated the effectiveness of all communication methods lower in 2014 than in 2012, with the exception of social media and text messages which increased as effective forms of communication.

Fruits & Veggies—More Matters Brand

Among moms, awareness of the Fruits & Veggies—More Matters brand has grown from 11% in 2007 to 27% in 2015, with most becoming familiar with it through supermarkets and food packaging. Additionally, 49% of mothers said they were more likely to purchase a product with the Fruits & Veggies—More Matters logo on it in 2015, up from 39%. Of those who were

aware of the Fruits & Veggies—More Matters brand, a record number of moms (49%) in 2015 said it motivates them to help their family eat more fruits and vegetables. Perhaps when moms are less informed about the health promoting properties of fruits and vegetables, as they appear to be in 2015, they are more inclined to be motivated by this health-promoting brand. If so, even greater use of the Fruits & Veggies—More Matters brand on products and in promotions would be warranted in the future.

In general, moms continue to be primed for action-oriented messages that will help them follow through with preparing and serving more fruits and vegetables to their families.

Barriers to including more fruits and vegetables, such as different preferences within the family, lack of support from their husbands, or being able to serve them while on a budget, reflect moms need for a supportive social network, and practical information, suggestions and tips that she can easily implement.



Key Trends

Introduction

For several years, recommendations in public health policy have encouraged an increase in fruit and vegetable consumption by adults and children in the United States.^{1,2} The health benefits of increasing fruit and vegetable consumption continue to grow,³ despite the daily intake of fruit and vegetables remaining well below recommended levels for most Americans.^{4,7} Perceived obstacles (including social, personal and economic challenges), intrinsic and extrinsic motivation, beliefs, confidence in coping with barriers to change behavior (self-efficacy), and self-management are all factors that impact fruit and vegetable intake among adults and children.⁸⁻¹¹

Since 1991, Produce for Better Health Foundation (PBH) has been dedicated to producing a healthier America through increased fruit and vegetable consumption. PBH, Centers for Disease Control and Prevention (CDC), and other national partners launched a call to action, Fruits & Veggies—More Matters, in March of 2007. Fruits & Veggies—More Matters is a branded social marketing campaign that replaced the previous national 5 A Day program¹² as the rallying cry to deliver the benefits of fruits and vegetables to consumers in a way that is designed to change and sustain their behavior over the long term. Fruits & Veggies—More Matters was developed with moms as the primary target audience.¹³

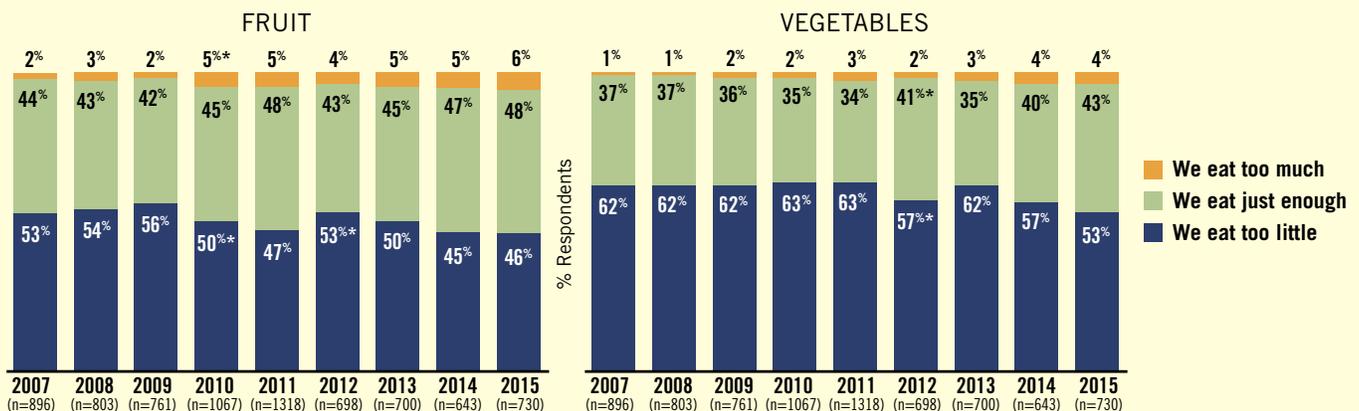
As part of a comprehensive research plan for Fruits & Veggies—More Matters, PBH conducted a baseline survey in 2007 and subsequent annual follow-up surveys to identify psychosocial factors associated with fruit and vegetable consumption of moms as it relates to their own consumption and their behavior with their families. Moms were chosen as the primary target audience because they were especially involved in their families' health and were concerned with disease prevention and holistic health. They actively sought information, especially regarding family health and well-being. Additionally, they tended to be very influential on their spouse and their parents.

The 2007 baseline survey was conducted with Generation X (Gen X) moms. Generation Y (Gen Y) moms were included beginning in 2010. However, given that Gen X and Gen Y moms continue to age, as do their children, PBH only used data to compare moms with children ages 10 and under for this report. Not all questions were asked each year in a desire to keep an appropriate survey length. Due to differences noted by income, all data in charts that included years 2007-2009 were weighted to fit income profiles of the 2008 raw data; otherwise, no weighting occurred. For more information about methodology and demographics, [see Appendix A and B.](#)

Moms' responses to questions about various factors related to fruit and vegetable consumption between 2007 and 2015 are outlined on the following pages.

Chart 1: Moms' Perception about Family's Fruit & Vegetable Consumption

Which of these statements best represents your family's eating habits for each of the following?
(Include fresh, canned, frozen, dried, and 100% juice)



*Represents statistically significant difference from previous year.

Fruit and Vegetable Consumption

The majority of moms have traditionally felt that they and their families eat too few fruits and vegetables, especially vegetables. Over time, however, more moms have come to believe their families eat enough fruits and vegetables, even though there is still great room for improvement (**Chart 1**). Separate consumption data supports moms' sense that her children are eating more whole fruit, but not juice or vegetables, over the past several years (**Chart 2**).¹⁴

Intentions

Intention is considered a key predictor of behavior.¹⁵ It is influenced by perceived outcomes of the behavior, perceived social pressure to engage in the behavior, and a perceived ease or difficulty in engaging in the behavior.

Positive intentions to include more fruits and vegetables in family meals and snacks have fluctuated over time, but still remains very high among moms, with nearly three out of four intending to do so in 2015. Between the 2007 baseline and 2008 follow-up survey, moms were showing higher purchase intention for fruits and vegetables (**Chart 3**). However, in 2009 and 2010, moms were showing lower purchase intention, which was probably directly related to economic pressures that occurred during the recession. Then, after three years of stability in 2011-2013, moms' intention to include more fruits and vegetables

in meals and snacks dropped significantly in 2014, with little change in 2015. This could be economically driven but is also consistent with slightly declining levels of importance that moms place on getting their families to eat more fruits and vegetables

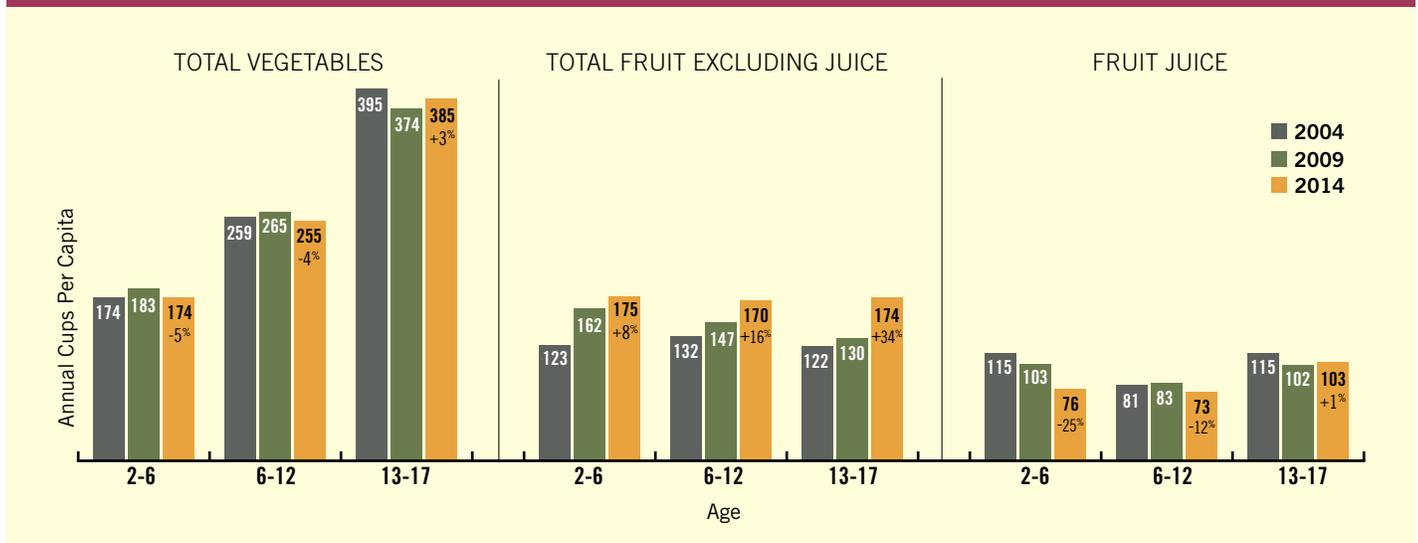
Chart 3: Moms' Intentions to Include More Fruits & Vegetables

In the next 3 months, I intend to include more fruits and vegetables in my family's meals and snacks.



*Represents statistically significant difference from previous year. Responses do not equal 100% because mid-point in 5-point Likert Scale was omitted.

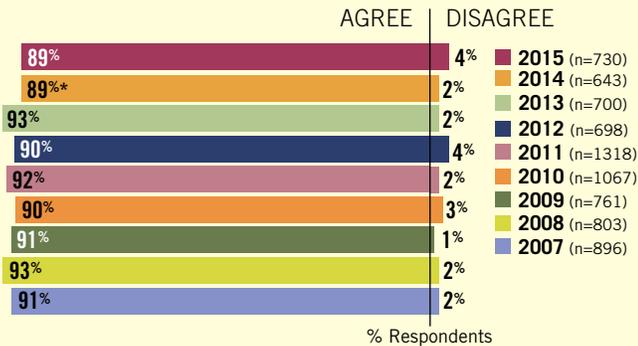
Chart 2: Fruit & Vegetable Consumption by Child Subset, 2004-2014



in meals and snacks (Chart 4). It is also consistent with moms' increasing agreement that getting her family to eat more fruits and vegetables is not one of her most pressing concerns and not worth the struggle (Chart 5). Moms' recent lower intention to serve more fruits and vegetables could be because she believes her family's consumption levels are increasing (Chart 1, page 6) or because she doesn't believe as strongly in their benefits (Chart 18, page 16).

Chart 4: Moms' Attitude About Importance of Fruits & Vegetables

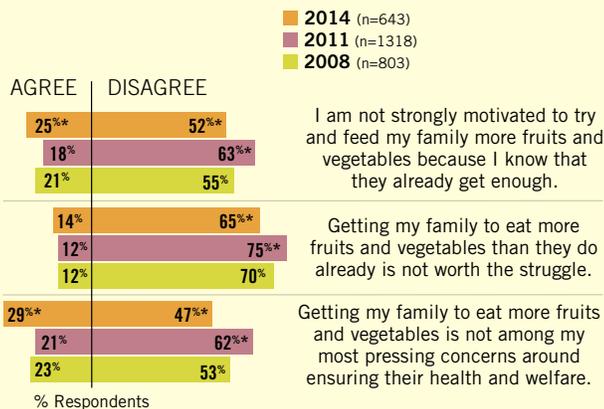
As a mom, it is important that I include fruits and vegetables in my family's meals and snacks.



*Represents statistically significant difference from previous year. Responses do not equal 100% because mid-point in 5-point Likert Scale was omitted.

Chart 5: Moms' Level of Motivation About Introducing More Fruits & Vegetables

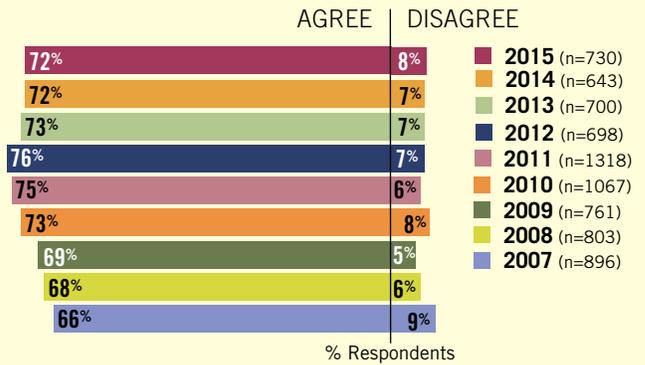
Please indicate your agreement or disagreement with these statements:



*Represents statistically significant difference from previous year. Responses do not equal 100% because mid-point in 5-point Likert Scale was omitted.

Chart 6: Moms' Level of Fruit & Vegetable Enjoyment

For me, eating more fruits and vegetables each day is enjoyable.



*Represents statistically significant difference from previous year. Responses do not equal 100% because mid-point in 5-point Likert Scale was omitted.

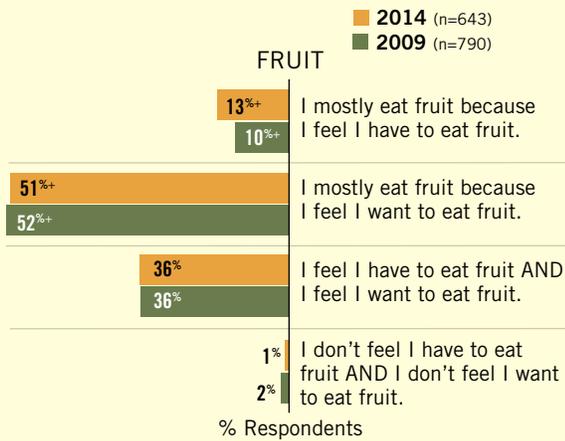


Personal Attitudes

Moms' personal attitudes towards eating fruits and vegetables have been mixed since 2007. Her enjoyment of eating fruits and vegetables has increased slightly over time, though it peaked in 2012 (Chart 6). When asked about why she herself eats fruits and vegetables, we find that vegetables are less popular than fruit consistently over time (Chart 7), with significantly more moms indicating that they eat fruit because they want to do so, and vegetables because they feel they have to eat them.

Chart 7: Moms' Attitudes Toward Eating Fruits & Vegetables

Which of the following best describes your attitude toward eating fruits and vegetables?



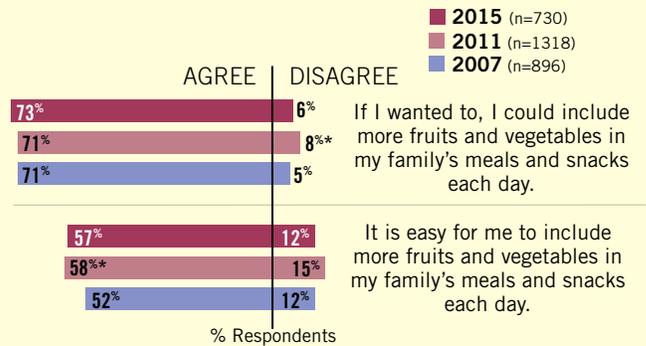
*Represents statistically significant difference from previous year.
+Represents statistically significant difference between fruit and vegetables in current year.

Self-Efficacy

In terms of the strength of moms' belief in her ability to increase her family's fruit and vegetable consumption (self-efficacy), nearly three out of four moms continue to say that they can include fruits and vegetables in meals and snacks if they wanted to (Chart 8), and this has remained strong over time. However, only half of moms say that it will be easy. In fact, moms increasingly consider eating fruits and vegetables a chore (Chart 9), regardless of income. It may be more of a chore because she reports her family eating more (Chart 1, page 6), requiring more of her time for preparation.

Chart 8: Moms' Belief in Her Ability to Increase Fruit & Vegetable Consumption

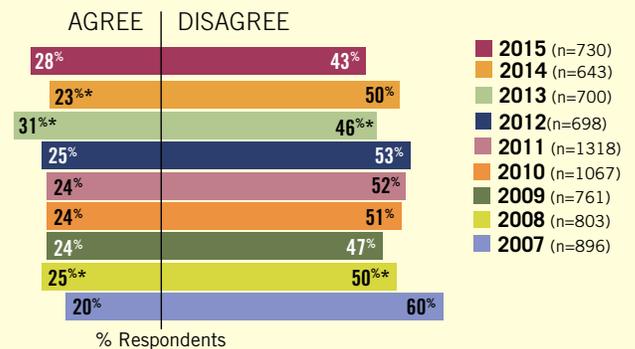
Please rate your level of agreement or disagreement with these statements:



*Represents statistically significant difference from previous year.
Responses do not equal 100% because mid-point in 5-point Likert Scale was omitted.

Chart 9: Moms' Attitude About Fruits & Vegetables as a Chore

For me, eating more fruits and vegetables each day is a chore.



*Represents statistically significant difference from previous year.
Responses do not equal 100% because mid-point in 5-point Likert Scale was omitted.

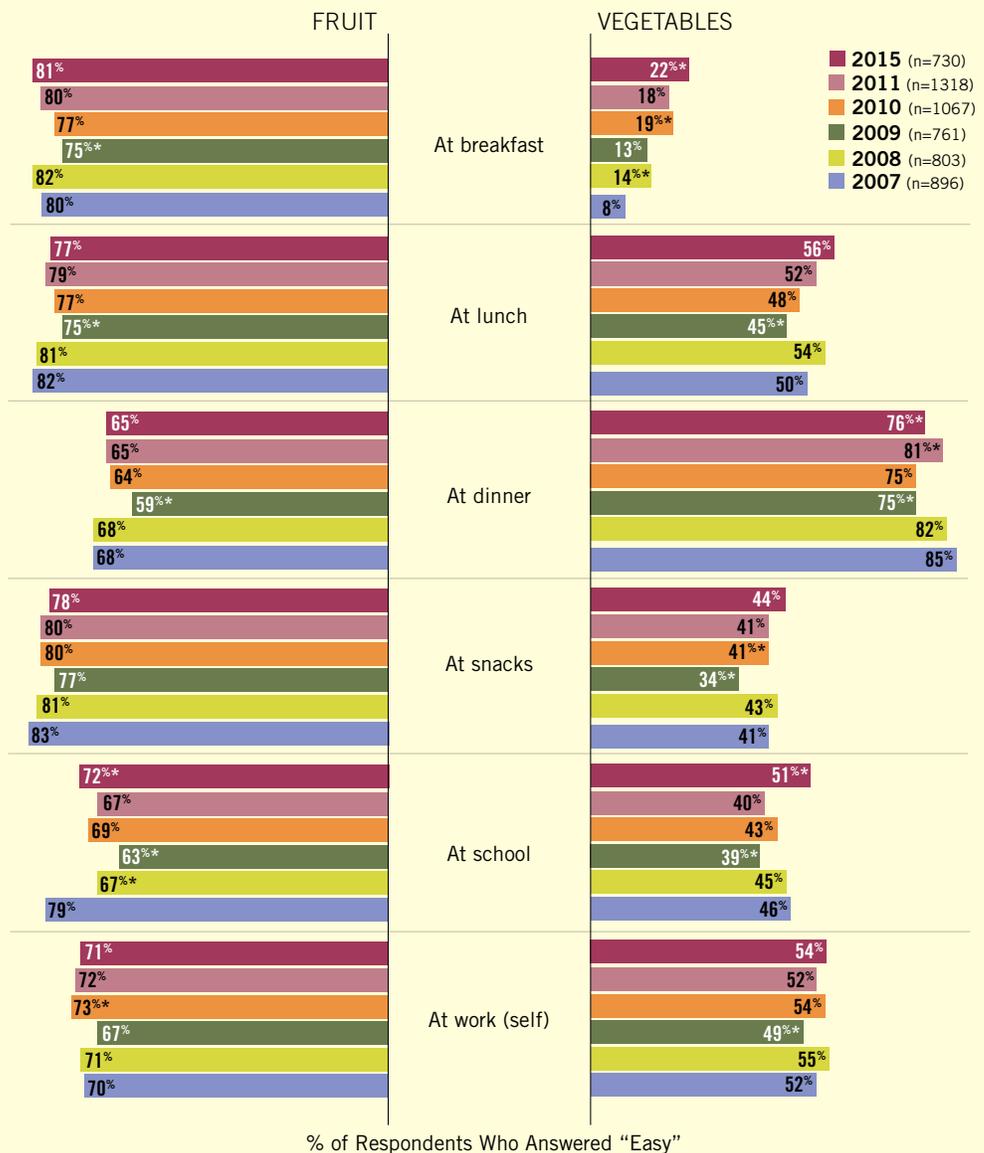
In the 2007 baseline study, higher levels of self-efficacy were reported for including fruits and vegetables at meals where they are traditionally served (e.g. vegetables at dinner, fruit at breakfast or as a snack). Levels of self-efficacy were lower and showed more variability for meals where they are not traditionally served (e.g. vegetables at breakfast) and when eating away from home. By 2009, however, moms were increasingly

finding it harder to get their family to eat fruits and vegetables during all eating occasions (**Chart 10**). This is likely a result of the difficult economic period, since it trended up again in all situations by 2011. Four years later, moms reported that it was significantly easier to get her family to eat fruits and vegetables at school. This is consistent with a later survey question where over half (54%) of moms agreed that the addition of fruits and

In terms of the strength of moms' belief in her ability to increase her family's fruit and vegetable consumption (self-efficacy), nearly three out of four moms continue to say that they can include fruits and vegetables in meals and snacks if they wanted to, and this has remained strong over time. However, only half of moms say that it will be easy.

Chart 10: Moms' Ability to Increase Family Fruit & Vegetable Consumption Throughout the Day

How easy is it for you to get your family to eat fruits and vegetables at the following times?



*Represents statistically significant difference from previous year.
Represents top 2 box score in 5-point Likert Scale.

vegetables in school meals or snacks has positively impacted their child's fruit and vegetable consumption (Chart 11). This coincides with the implementation of the Healthy, Hunger-Free Kids Act of 2010, which included a number of provisions to improve the nutritional quality of meals served in school.¹⁶

Moms also report an increased level of ease in getting their family to eat fruits and vegetables at restaurants and quick service restaurants, which has shown steady improvement over time (Chart 12). This coincides with the addition of fruit in quick service restaurants during this period and the expansion of healthy entrées on restaurant menus.¹⁷⁻¹⁹ In 2015, more moms

agreed than disagreed that the addition of fruits and vegetables to restaurant menus and to children's meals at fast food restaurants has positively impacted their child's consumption (Chart 11).

Finally, 72% of moms wished there was more marketing of fruits and vegetables directly to children. Unfortunately, advertising for fruits and vegetables represents no more than 1% of food and beverage ads viewed by children and teens.^{20, 21}

Chart 11: Moms' Perception about External Influences on Their Child's Fruit & Vegetable Consumption, 2015

Recent changes have occurred to increase consumption of fruits and vegetables among children. Please indicate your level of agreement with the following statements:

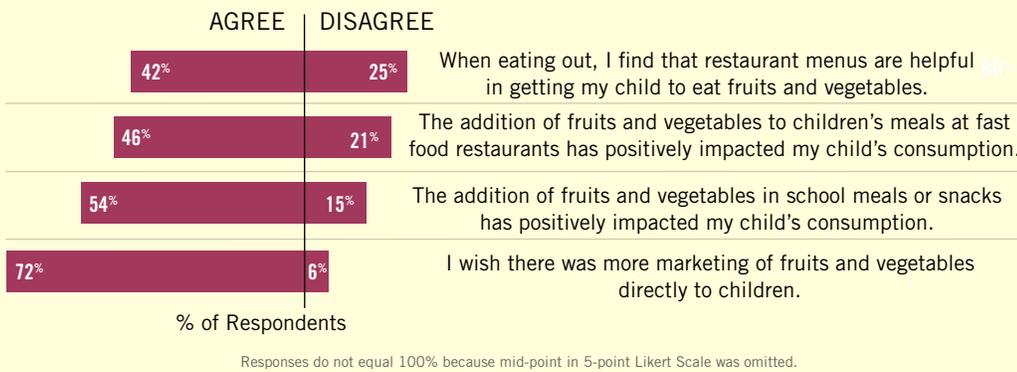
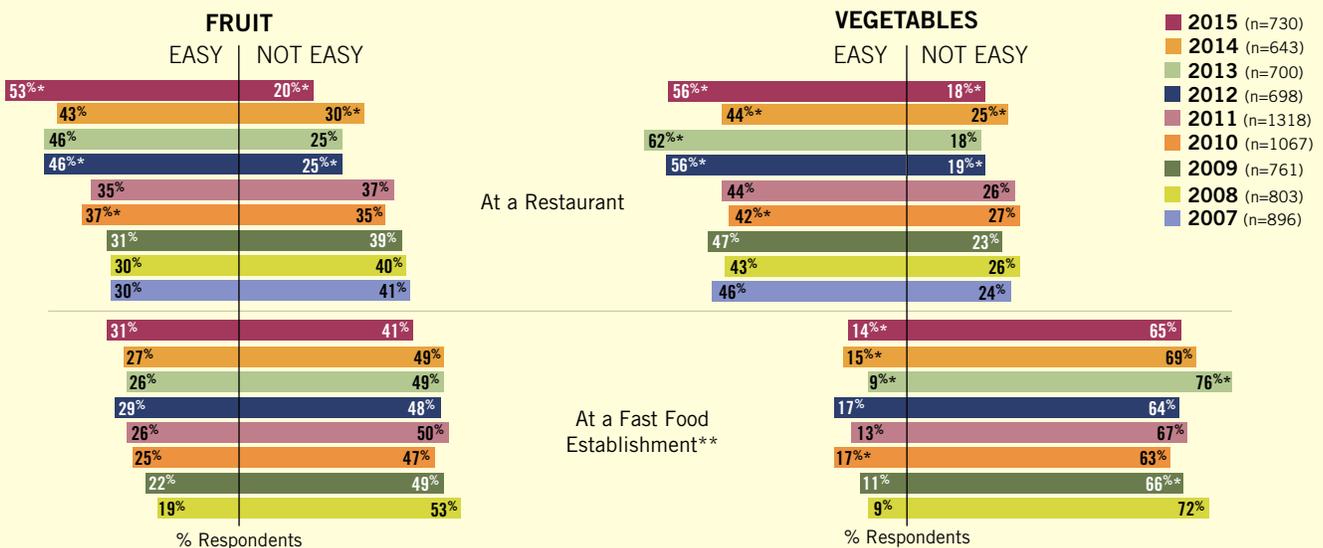


Chart 12: Moms' Ease in Getting Family to Eat Fruits & Vegetables When Eating Out

How easy is it for you to get your family to eat fruits and vegetables at the following times?

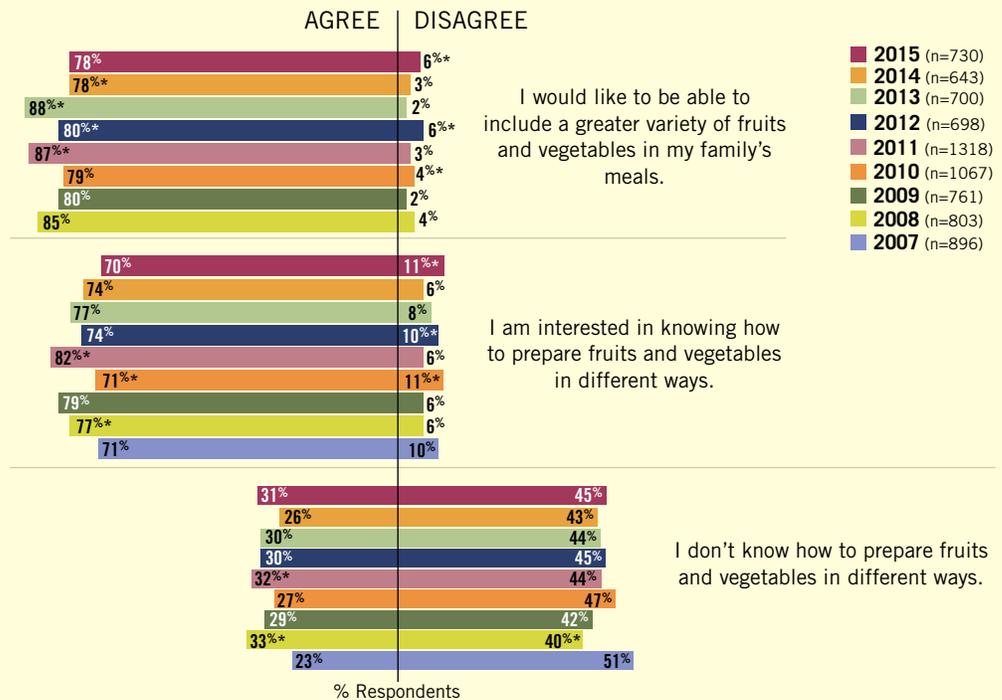


Beliefs and Social Support

Three out of four moms indicate they would like to be able to include a variety of fruits and vegetables in their family's meals and snacks, with nearly half indicating they feel they know how to prepare them in different ways (Chart 13). Still, there is strong interest in knowing how to prepare them in different ways. This interest peaked, however, in 2011 and has been declining ever since. In years 2008 and 2011, when more moms responded that they didn't know how to prepare fruits and vegetables in different ways, we also saw a greater interest in knowing how to prepare them in new ways. In 2015, however, more

Chart 13: Moms' Attitudes Toward Fruits & Vegetables

Please rate your level of agreement or disagreement with the following statements:



*Represents statistically significant difference from previous year. Responses do not equal 100% because mid-point in 5-point Likert Scale was omitted.



moms responded that they didn't know how to prepare fruits and vegetables in different ways, but we did not see an increased interest to do so. Whether this reflects a reduced level of motivation or an increased level of accomplishment is unclear.

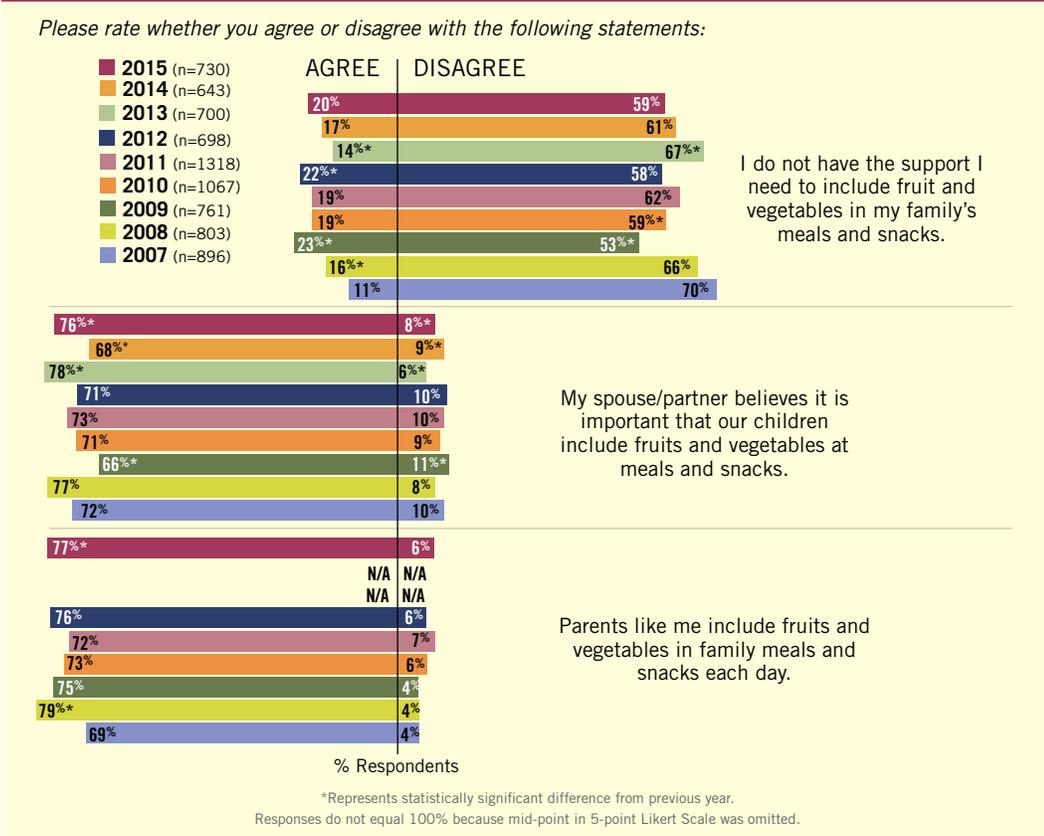
Generally moms indicate they have the support they need to include fruits and vegetables in their family's meals and snacks, and their spouse/partner believes it is important to do so (Chart 14). Worth noting is that in years when fewer spouses believed it was important to feed the children fruits and vegetables (2009, 2012 and 2014), moms more often reported not having the support they needed to include more fruits and vegetables in meals and snacks, suggesting that dads are an important social support in some households. Conversely, years when moms felt they had the most support to include fruits and vegetables in meals and snacks were also the years they reported that their spouse also thought it was important (2008 and 2013).

An open-ended question was asked in 2010 to better understand what moms meant by 'support' if they indicated that they

needed it. In response, moms reported that they were lacking spousal/family support, had various dislikes of fruit or vegetables within the family, needed different ideas/recipes, cost reduction or financial support, and more time. This open-ended question helped frame future questions in the annual survey to understand barriers to consumption. (See page 30 on Barriers). This question was again asked in 2015 and the words in Graphic 1 show the most frequent mentions in the largest font. For moms, more support from their husband is the main type of support she needs, consistent with other research that male partners are obstructive to their efforts to increase their families' fruit and vegetable consumption.²²

The extent to which peers and important others would approve or disapprove of their performance can impact behavior, so an understanding of mom's perceptions of her peers' support is important.²³ Three out of four moms believe that other moms also include fruits and vegetables in family meals and snacks each day, which has been relatively stable over time (Chart 14). Lower income moms, however, indicate that their peers include

Chart 14: Moms' Sense of Social Support In Efforts to Increase Family Fruit & Vegetable Consumption



The extent to which peers and important others would approve or disapprove of their performance can impact behavior, so an understanding of mom's perceptions of her peers' support is important.

fruits and vegetables in meals and snacks significantly less (69%) than higher income moms report about their peers (78%) (Chart 15). Similarly, lower income moms do not believe it is as important to include fruits and vegetables in family meals and snacks and would not find it as easy to do so compared to higher income moms (Chart 15). Furthermore, lower income moms are less likely to say that their spouse/partner believes it is important to include fruits and vegetables in meals and snacks and express less interest in doing so compared to higher income moms (Chart 15). The differences noted in Chart 15 between lower and higher income households have been generally consistent since 2007.

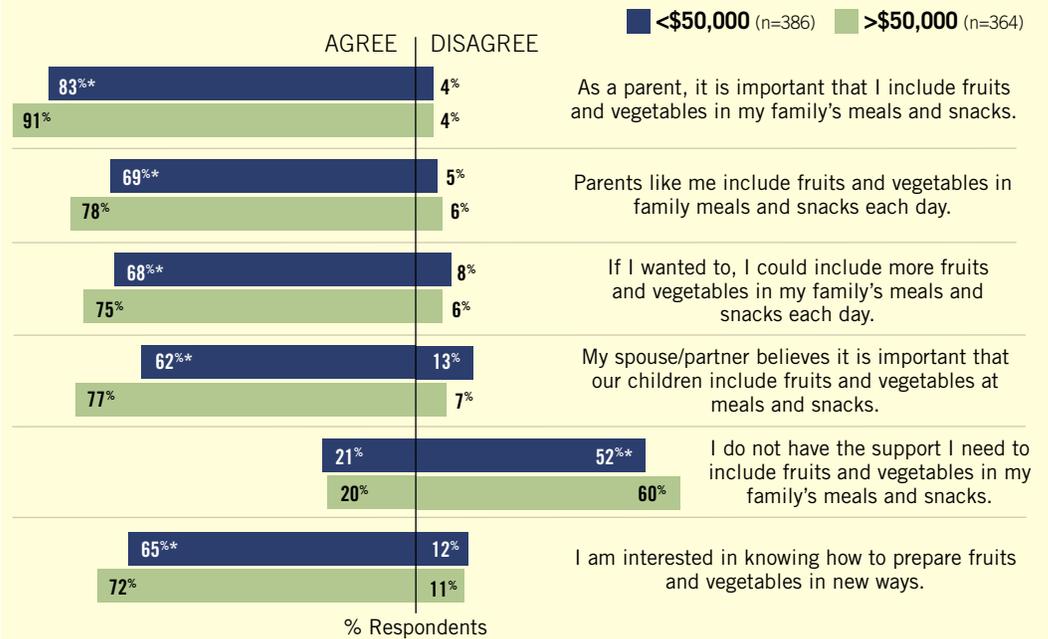
... lower income moms do not believe it is as important to include fruits and vegetables in family meals and snacks and would not find it as easy to do so compared to higher income moms.

Graphic 1: What Kind of Support Don't You Receive that You Need to be Able to Include Fruits and Vegetables in Your Family's Meals and Snacks?



Chart 15: Moms' Attitudes About Fruits & Vegetables by Income, 2015

Please rate your level of agreement or disagreement with these statements:



*Represents statistically significant difference from previous year. Responses do not equal 100% because mid-point in 5-point Likert Scale was omitted.

In terms of their child's social support, 80% of moms agreed that their child enjoyed eating fruit, though only half that many (43%) said that their child's friends ate their fruit (Chart 16). Similarly, 52% of moms said their child enjoyed eating vegetables, but that only 34% of their child's friends ate their vegetables.

Perceived Benefits

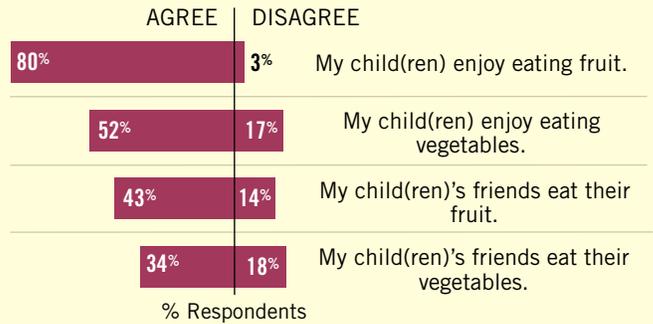
Higher nutrition knowledge shows a positive association with dietary intake, especially a higher intake of fruits and vegetables.^{24, 25} Furthermore, positive attitudes and beliefs about the relationship of consumption of fruits and vegetables to disease prevention have predicted intake of children, of mothers and of adults in general.²⁶⁻²⁹ Therefore, it is important that moms continue to understand the important role of fruits and vegetables to health.

Moms' perception of various statements pertaining to fruits and vegetables and health and nutrition can be seen in Chart 17. Agreement scores for all seven benefit statements have shown a decline over time. This is consistent with a decline seen elsewhere in various attitudinally-divided segments of the population where sub-groups that are expected to be focused on leading a healthy lifestyle or have a health condition appear to be thinking less about fruit and vegetable consumption when it comes to their overall health.³⁰

Similarly, the role that fruits and vegetables play in preventing weight gain and heart disease were ranked higher by moms than their prevention of any other disease state. Despite a generally positive upward trend between 2009 and 2011, there was a marked decrease in the belief of

Chart 16: Moms' Sense of Child's Social Support, 2015

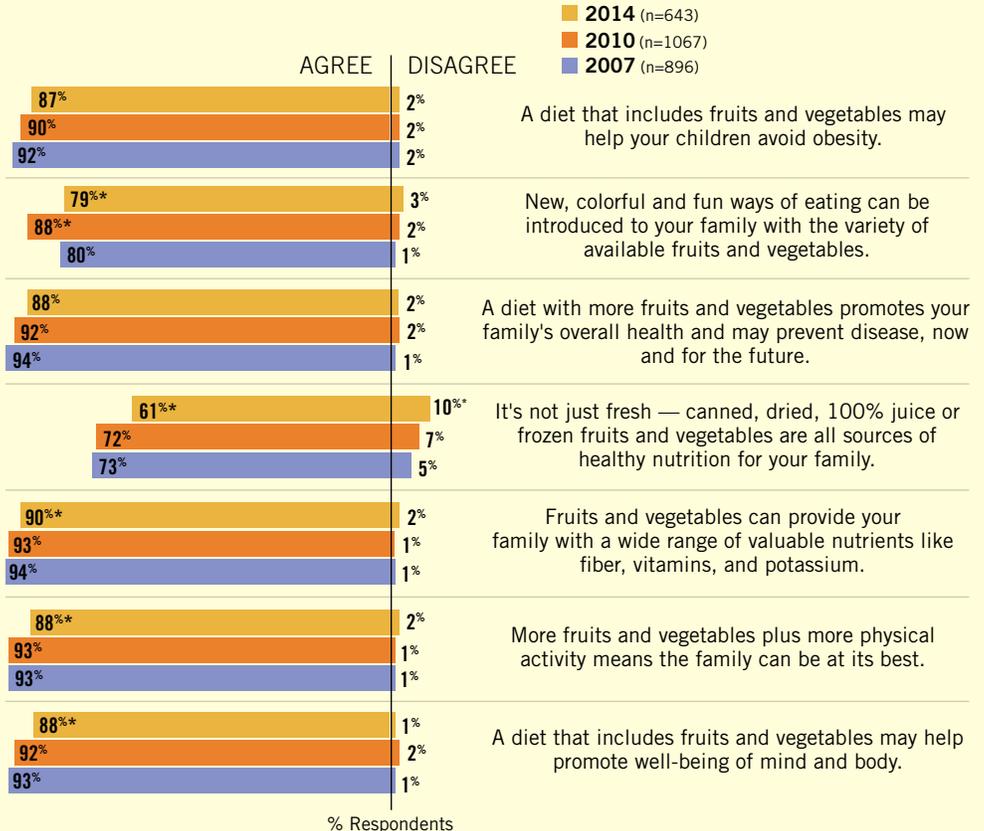
Please your level of agreement or disagreement with the following statements:



Responses do not equal 100% because mid-point in 5-point Likert Scale was omitted.

Chart 17: Moms' Perception of Key Fruit & Vegetable Benefit Statements

Please rate your level of agreement or disagreement with the following statements:

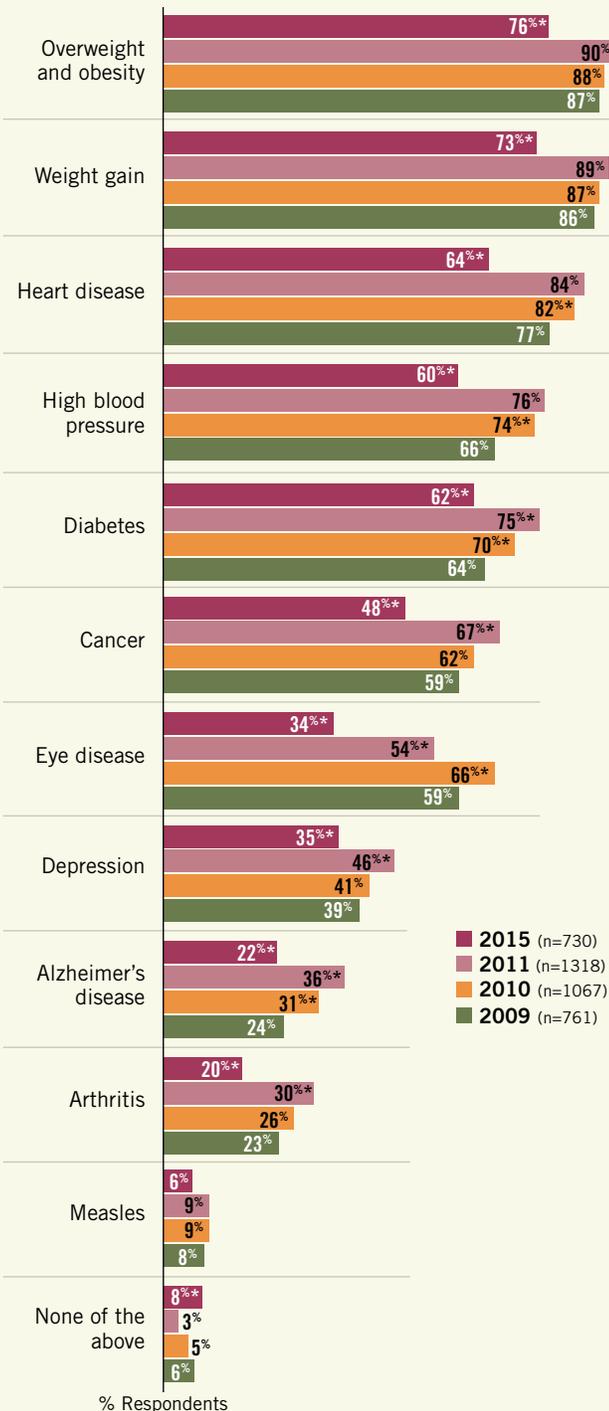


*Represents statistically significant difference from previous year.

Responses do not equal 100% because mid-point in 5-point Likert Scale was omitted.

Chart 18: Moms' Perceived Disease-Prevention Benefits of Fruits & Vegetables

Which of the following do you believe consuming fruits and vegetables may be beneficial for preventing? (Please select all that apply.)



*Represents statistically significant difference from previous year.

the role of fruits and vegetables in preventing various diseases by 2015 (Chart 18). Declining responses are again likely due to an overall decline in the relevance of fruits and vegetables among a core group of health-oriented consumers,³¹ though why remains to be seen.

Despite declining knowledge about the health benefits of fruits and vegetables, research continues to grow in support of their health benefits.³² A 2012 literature review suggests that there is convincing evidence that increasing the consumption of fruit reduces the risk of hypertension, coronary heart disease and stroke. There is probable evidence that the risk of cancer in general is inversely associated with fruit and vegetable consumption and that there is no influence of increased consumption on the risk of type 2 diabetes mellitus, independent of overweight. There is possible evidence that increased consumption of vegetables and fruit may lower the risk of certain eye diseases, dementia, osteoporosis, asthma, chronic obstructive pulmonary disease, rheumatoid arthritis, and prevent body weight gain, perhaps indirectly reducing the incidence of type 2 diabetes mellitus, since overweight is the most important risk factor for this disease. Finally, there is even possible evidence regarding an association between the consumption of vegetables and fruit and irritable bowel diseases, glaucoma, and diabetic retinopathy.



When asked which components of fruits and vegetables provide health benefits (Chart 19), respondents indicated that vitamins, antioxidants, fiber and minerals were the components they thought provided the greatest health benefits. Water and protein were seen as beneficial components over time, while the term 'phytonutrients' lagged behind the others as a component in fruits and vegetables that provided health benefits. When fruits and vegetables were separated in 2015 to determine if perceptions differed between the two dietary groups, vegetables were thought to provide significantly more minerals, fiber, phytonutrients, and protein than fruit. In contrast, fruit was thought to provide more water and antioxidants (Chart 20).

When asked for the most important reasons why moms themselves eat fruits and vegetables, the primary reasons remained consistent between 2012 and 2014 (Chart 21). These included to stay healthy, they are part of a balanced diet, and

they like the taste. In 2014 Moms cited to feel well and to prevent weight gain more often as an important reason they eat fruits and vegetables.

Chart 19: Moms' Perception of Healthy Components Associated with Fruits & Vegetables

Which of the following components of fruits and vegetables do you believe may provide health benefits? (Please select all that apply.)

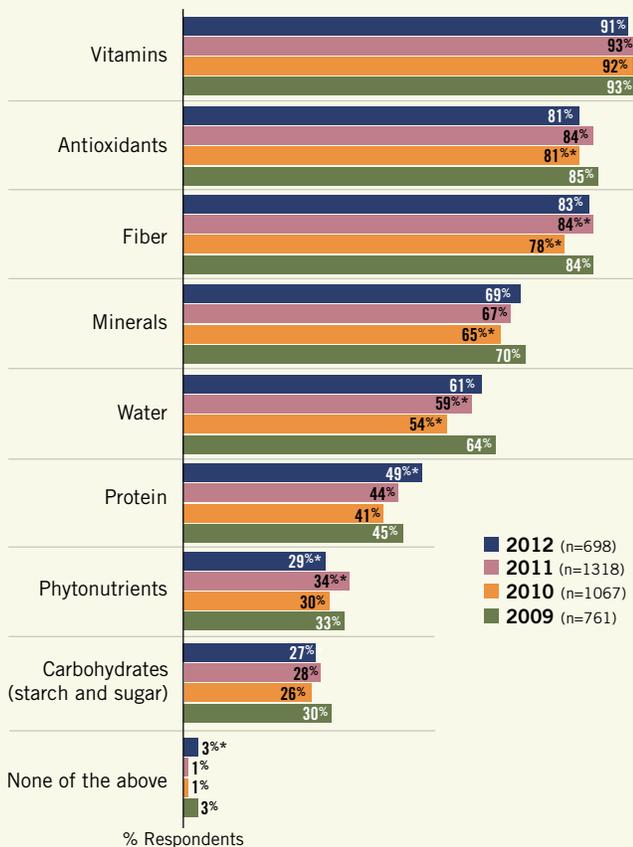


Chart 20: Moms' Perception of Healthy Components Associated with Fruit vs. Vegetables, 2015

Which of the following components of fruits and vegetables do you believe may provide health benefits? (Please select all that apply.)

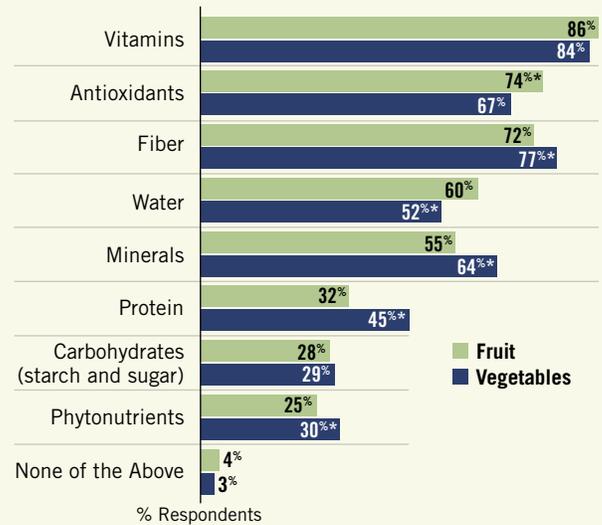
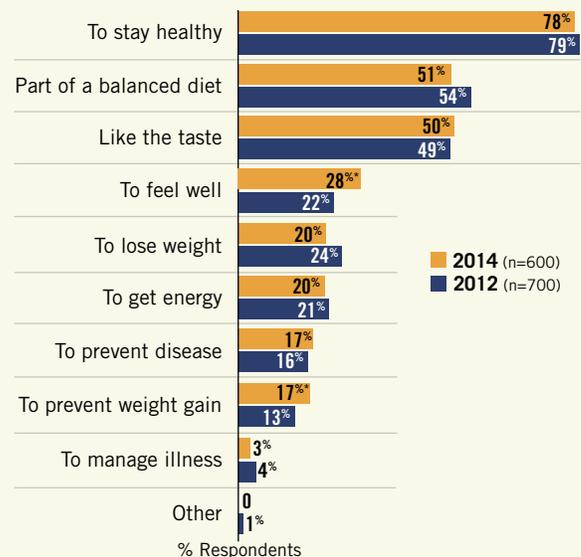


Chart 21: Moms' Reported Reasons Why They Eat Fruits & Vegetables

Please select up to three of the most important reasons why you, yourself, eat fruits and vegetables.



Why All Forms of Fruits and Vegetables Matter

All Forms Link to Better Health

Studies demonstrate the importance of fruits and vegetables to health, but none were specific to the ‘form’ of the fruit or vegetable, e.g. fresh, frozen, canned, dried or 100% juice.³³⁻³⁷ Fruits and vegetables in all forms provide under-consumed nutrients important to public health. These include folate, magnesium, potassium, dietary fiber, and vitamins A, C, and K. Fruits and vegetables, regardless of form, contain phytochemicals that appear to play an important role in disease prevention.³⁸⁻⁴³

Packaged Fruits & Vegetables are not the Chief Culprits for Sodium & Added Sugar

Fruits and vegetables are not the main contributors to Americans’ sugar and sodium intake, regardless of the form in which they are consumed. All canned, frozen, and dried fruit combined contributed less than 2 percent of the added sugar in most Americans’ diets,⁴⁴ and vegetables added less than 1 percent of the sodium.⁴⁵ Most vegetables in the market today meet FDA’s ‘healthy’ definition, even with all of the juice in the can, which must be represented on the Nutrition Facts box. Draining vegetables can reduce sodium by nearly 40%.⁴⁶ Draining heavy syrup from canned fruit can also reduce sugar content, though the quantity has not yet been determined.

100% Juice Can Help Meet Nutrient Goals

Drinking 100% juice can help children and adults reach daily fruit and vegetable goals.^{47, 48} On average, per capita consumption of juice for children 4-13 years of age is less than ½ cup (3.75 ounces) per day, which is less than the American Academy of Pediatrics allowance of 4-6 ounces of juice per day.⁴⁹ Adult consumption is even lower, around 1/3 cup per day.⁵⁰ For all Americans, whole fruit provides almost two-thirds of fruit in the diet, while 100% juice provides the remainder.⁵¹ There is no clear evidence that 100% fruit juice replaces whole fruit in the diet. Compared to non-consumers, people who drank 100% fruit juice also ate more whole fruit.⁵² NHANES data show that people drinking 100% fruit juice have better quality diets and more fiber, than those who don’t drink juice.⁵³ In addition to providing key under-consumed nutrients and nutrients of concern like vitamin C,



potassium, magnesium, vitamin D (fortified) and calcium (fortified), 100% fruit juice contains many naturally occurring phytochemicals and, for some, provides a significant level of these beneficial compounds in the American diet.⁵⁴⁻⁵⁷ Finally, the majority of studies show that drinking moderate amounts of 100% fruit juice is not linked to overweight or obesity in healthy adults and children.⁵⁸⁻⁶²

All Forms Improves Self-Efficacy

Mothers feel they can help their families eat more fruits and vegetables when they know that all forms (canned, frozen, fresh, dried, 100% juice) help them meet their daily goals.⁶³ When mothers feel guilty or that they are a ‘bad mother’ if they don’t feed their family fresh fruits and vegetables, they simply ‘give up.’⁶⁴ For example, three out of four moms (76%) say canned fruits and vegetables help them get produce into their kids’ diet⁶⁵ and more than half of Americans (56%) feel canned fruits and vegetables are extremely or very important in helping to prepare convenient, nutritious and affordable meals. This fraction rises to two-thirds (67%) of those using federal food assistance (Supplemental Nutrition Assistance Program (SNAP), and Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)).⁶⁶

All Forms Correlates with Greater Consumption

Shoppers with all forms of fruits and vegetables available in their home report eating more fruits and vegetables overall.⁶⁷ Likewise, adults and children who eat canned fruits and vegetables eat more fruits and vegetables overall.^{68, 69} In fact, not only do they eat more fruits and vegetables overall, but they also have higher intake of select nutrients, a higher diet quality, and comparable sodium and added sugar intakes than those who don’t.⁷⁰ Exclusively recommending one form of fruit or vegetable over another ignores the benefits of each form and limits consumer choice.

Moms' Practices

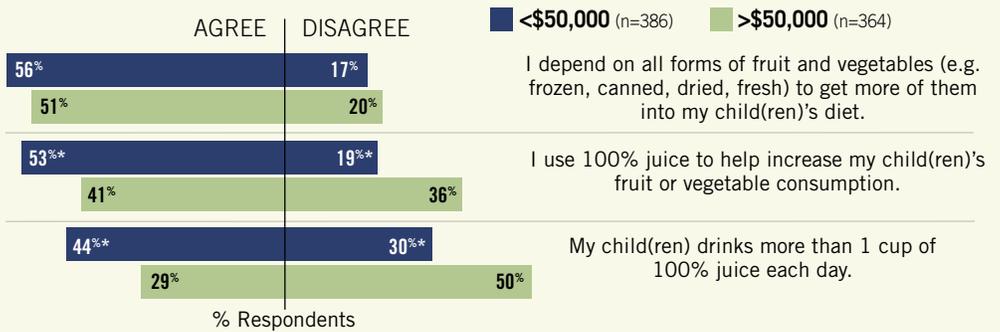
More than half of moms (54%) indicate that they depend on all forms of fruits and vegetables to get more of them into their child's diet (Chart 22). Furthermore, even more (59%) were interested in learning how to incorporate other forms of fruits and vegetables into meals and snacks. For all moms, texture was a factor that is important to their children equally for fruit (63%) and vegetables (62%).

Almost half (47%) of moms indicate that they use 100% juice to help increase their child's fruit or vegetable consumption. A greater number of moms say their children do not drink more than a cup of 100% juice each day than those who say that they do (Chart 22). For moms in lower income households, however, we see a shift in greater reliance on juice (Chart 23) with significantly more lower income (53%) than higher income (41%) households using 100% juice to help increase their child's fruit or vegetable consumption.

Children in lower income households are more likely to drink an excess of 1 cup of 100% juice each day. Lower income moms also agreed (56%) that they depended on all forms of fruits and vegetables, but not significantly more than the 51% of higher income moms who did (Chart 23).

Chart 23: Moms' Attitudes About Including All Forms of Fruits & Vegetables by Income, 2015

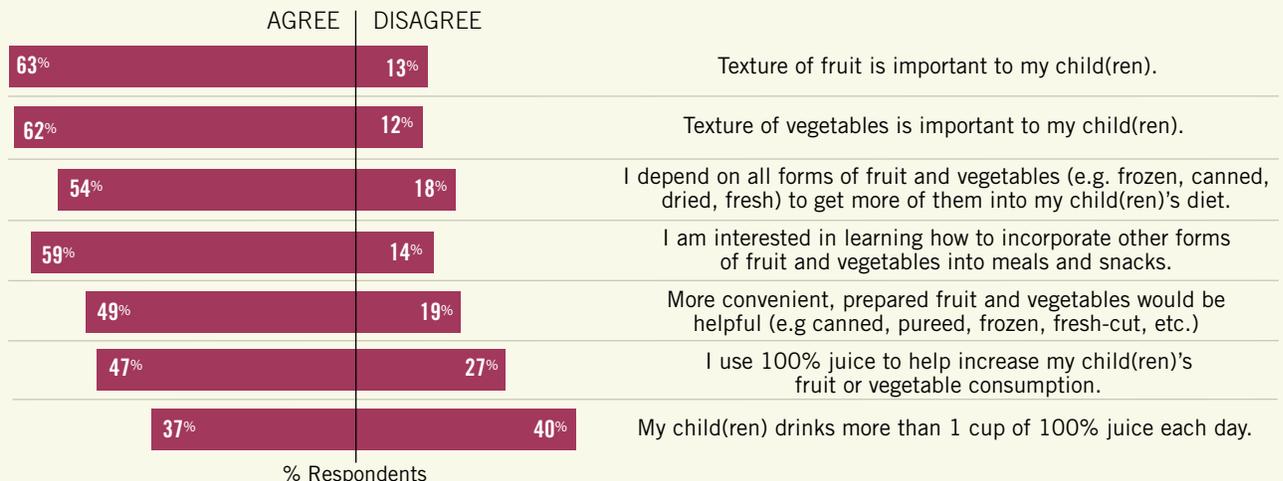
Please rate your level of agreement or disagreement with these statements:



*Represents statistically significant difference between income levels. Responses do not equal 100% because mid-point in 5-point Likert Scale was omitted.

Chart 22: Moms' Attitudes About Including All Forms of Fruits & Vegetables in their Child's Meals and Snacks, 2015

Please rate your level of agreement or disagreement in relation to including fruits and vegetables in your child(ren)'s meals and snacks.



Responses do not equal 100% because mid-point in 5-point Likert Scale was omitted.

More than half of moms (59%) say that convenient prepared fruits and vegetables in single-serve snack sizes help to get servings of fruits and vegetables into their child's diet (**Chart 24**), with nearly as many (57%) wishing there were more convenient, prepared forms available. Given that moms report that eating more fruits and vegetables is becoming more of a chore (**Chart 9**, page 9), anything to make it more convenient and at an affordable price is important.

Chart 24: Moms' Perceptions About Prepared Fruits & Vegetables, 2015

Recent changes have occurred to increase consumption of fruits and vegetables among children. Please indicate your level of agreement with the following statements:



Responses do not equal 100% because mid-point in 5-point Likert Scale was omitted.

Perception of Healthy

Despite the health benefits of eating more fruits and vegetables, there appears to be a decline in the relevance of fruits and vegetables among a core group of health-oriented consumers.⁷⁴ It is therefore not unexpected to see an overall decrease in moms' perception of fruits and vegetables as healthy (**Chart 25**). This does not explain, however, moms' growing opinion that frozen, 100% juice, dried, and canned fruits and vegetables are less healthy than fresh produce.

These perceptions continued to worsen despite national dietary guidance policy. The Dietary Guidelines emphasize fresh, frozen, canned and dried fruits and vegetables, as do the Fruits & Veggies—More Matters brand guidelines, whose criteria were developed by CDC.⁷⁵ Walmart and Disney nutrition guidelines also include all forms of fruits and vegetables and have received recognition by the *Let's Move* initiative.⁷⁶⁻⁷⁸

Other forces existed between 2007 and 2015 that could explain some of the negative perceptions about packaged fruits and vegetables. For example, more focus on organic and locally grown produce has fueled interest in fresh and avoiding anything 'processed.'⁷⁹ Also, there has been greater emphasis on fresh fruits and vegetables in the Special Supplemental Nutrition

Program for Women, Infants and Children (WIC) and through expansion of the USDA Fresh Fruit & Vegetable Program in schools.^{80, 81}

Simultaneously, the use of shelf labeling or food labeling programs like NuVal,⁸² Guiding Stars,⁸³ or Facts Up Front⁸⁴ has expanded over recent years, some with controversy given their proprietary nature.⁸⁵ There is concern that these rating systems

may disadvantage packaged fruits and vegetables, possibly contributing to the decrease in consumer perception about their healthfulness. These programs rank foods according to algorithms; any fruit or vegetable that has added sodium or sugar is scored significantly lower than its fresh counterparts, despite the fact that these fruits and vegetables still contain

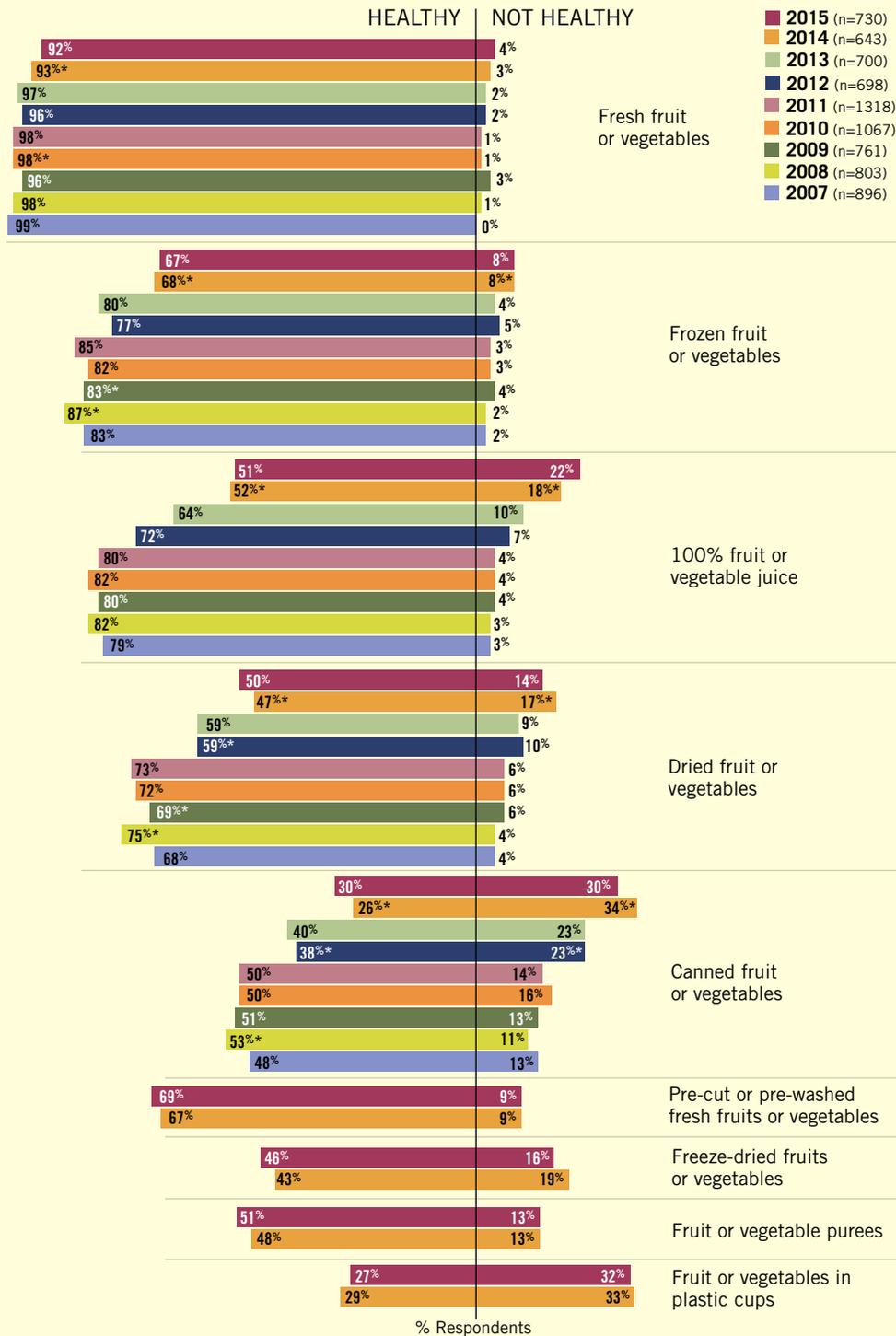
beneficial flavonoids, carotenoids, fiber, vitamins, minerals and other phytochemicals that work synergistically to benefit health.^{86, 87} The algorithms rely only on 'nutrients' and give no credit to the 'food' that is provided.

Finally, words matter. The way in which health professionals communicate dietary recommendations is important in shaping consumer perceptions. For example, when 'limiting language' is used, like "*Overall, vegetables fresh from the farm or just picked are healthier than frozen or canned ones. But frozen and canned vegetables can still be a good choice.*"⁸⁸ it detracts from the perceived healthfulness of packaged fruits and vegetables.⁸⁹ Furthermore, consumers are significantly more likely to say that 'limiting language' encourages a decreased intake of packaged fruits and vegetables, compared to 'inclusive language' such as "*When including more fruits and vegetables in your diet, all forms of fruits and vegetables matter — fresh, frozen, canned, dried and 100% fruit or vegetable juice.*"⁹⁰ Language should encourage all forms of fruits and vegetables so people can feel good about the purchase they're making and find more ways to increase intake.

No doubt expansion of fresh produce is a very positive step forward, but simply shifting from one form of fruit or vegetable to another will not attain the goal of greater overall fruit and vegetable consumption.

Chart 25: Moms' Perceived Healthfulness of Different Forms of Fruits & Vegetables

In general, how healthy do you consider the following foods to be?



*Represents statistically significant difference from previous year. Responses do not equal 100% because mid-point in 5-point Likert Scale was omitted.

... consumers are significantly more likely to say that ‘limiting language’ encourages a decreased intake of packaged fruits and vegetables, compared to ‘inclusive language’ such as “When including more fruits and vegetables in your diet, all forms of fruits and vegetables matter — fresh, frozen, canned, dried and 100% fruit or vegetable juice.”

Purchase Drivers

Convenience, shelf-life, and cost are key purchase drivers of packaged fruit and vegetables (**Charts 26 & 27**). Healthy, tastes good, good snack and family preferences were the main reasons moms purchased fresh produce. Reasons for purchasing canned,

dried, and juiced fruits and vegetables decreased significantly in 2014 compared to 2012, with fewer significant changes in reasons for purchasing fresh or frozen fruits and vegetables.

Chart 26: Moms' Reasons for Purchasing Various Forms of Fruit

Why do you purchase [various forms of] fruit? (Please select all that apply)

Reasons for Purchasing FRUIT	Fresh	Frozen	Canned	Dried	100% Juice
	2014 / 2012	2014 / 2012	2014 / 2012	2014 / 2012	2014 / 2012
Healthy	87 / 90	45 / 40	17 / 28	40 / 44	52 / 66
Tastes Good	76 / 83	35 / 39	32 / 52	46 / 51	66 / 72
Good Snack	82 / 79	30 / 27	41 / 45	73 / 69	18 / 22
I and/or my family likes them	81 / 79	41 / 36	43 / 59	49 / 43	76 / 78
Easy to Use	43 / 53	56 / 52	62 / 73	40 / 43	36 / 39
Quality	39 / 47	19 / 19	7 / 17	10 / 19	17 / 30
Variety	32 / 37	23 / 28	17 / 31	15 / 25	12 / 27
Quick to prepare	31 / 34	43 / 43	56 / 61	18 / 23	17 / 22
Cost	22 / 20	33 / 28	44 / 44	14 / 15	14 / 15
Use in recipes	21 / 16	54 / 53	22 / 30	30 / 27	2 / 5
Keeps well	13 / 12	67 / 58	68 / 66	45 / 40	17 / 31
Other	1 / 0	7 / 3	2 / 3	4 / 2	1 / 2
	(n=189/379)	(n=181/267)	(n=180/349)	(n=141/265)	(n=190/390)

% Respondents

- 2014 score higher than 2012.
- 2014 score lower than 2012.
- 2014 score significantly lower than 2012.

Number of respondents will vary as this question was only asked of those respondents who reported keeping the form of fruit in question available in their homes.

Chart 27: Moms' Reasons for Purchasing Various Forms of Vegetables

Why do you purchase [various forms of] vegetables? (Please select all that apply)

Reasons for Purchasing VEGETABLES	Fresh	Frozen	Canned	Dried	100% Juice
	2014 / 2012	2014 / 2012	2014 / 2012	2014 / 2012	2014 / 2012
Healthy	88 / 91	53 / 54	21 / 24	17 / 28	53 / 67
Tastes Good	74 / 79	43 / 44	28 / 39	23 / 27	43 / 54
Good Snack	44 / 48	5 / 7	6 / 7	30 / 29	23 / 26
I and/or my family likes them	70 / 71	44 / 49	42 / 49	19 / 24	49 / 49
Easy to Use	34 / 36	71 / 75	72 / 74	31 / 23	27 / 37
Quality	38 / 52	20 / 26	10 / 15	11 / 21	16 / 28
Variety	30 / 32	24 / 32	18 / 30	10 / 22	17 / 18
Quick to prepare	29 / 30	72 / 73	70 / 75	18 / 21	20 / 21
Cost	22 / 22	50 / 50	59 / 62	24 / 19	17 / 19
Use in recipes	49 / 51	42 / 47	42 / 44	14 / 35	20 / 20
Keeps well	11 / 14	73 / 73	62 / 72	31 / 35	27 / 25
Other	1 / 1	0 / 0	2 / 2	4 / 7	2 / 3
	(n=193/380)	(n=196/372)	(n=199/377)	(n=105/142)	(n=113/248)

% Respondents

- 2014 score higher than 2012.
- 2014 score lower than 2012.
- 2014 score significantly lower than 2012.

Number of respondents will vary as this question was only asked of those respondents who reported keeping the form of vegetable in question available in their homes.



Uses

As shown in **Chart 28**, frozen fruit is primarily used in smoothies/beverages, followed by desserts and as a snack. Canned fruit was primarily used as a snack or as is. Dried fruit was primarily used as a snack, followed by use in trail mix, on cereal, in salads, or in baking. Fruit juice is primarily consumed as is. Fresh fruit is primarily consumed as is or as a snack. Frozen

vegetables are primarily consumed as a side dish, followed by use in stir-frys, soups/stews, and casseroles. Canned vegetables are primarily used as a side dish, followed by use in soups/stews and casseroles. Fresh vegetables are primarily consumed in salads, as a side dish, or as is, but also in soups/stews, stir-fry, and as a snack.

Chart 28: Moms' Reported Use of Various Forms of Fruits & Vegetables, 2014

How do you use fresh, frozen, canned, dried, and 100% fruit and vegetable juice? (Please select all that apply.)

FRUIT	% Respondents				
	Fresh	Frozen	Canned	Dried	100% Juice
Snacks	76%	34%	63%	82%	-
Dessert	43%	35%	31%	-	-
Smoothies/Beverages	44%	86%	13%	-	26%
Fruit Salads	33%	17%	26%	-	2%
As is	92%	27%	62%	-	96%
Baking	30%	27%	18%	37%	-
Side dish	-	11%	30%	10%	-
On cereal	33%	-	-	39%	-
Added to sauces/salsas	7%	9%	4%	6%	2%
In salads	22%	3%	9%	38%	-
Trail mix	-	-	-	47%	-
Other	1%	4%	1%	5%	2%

(n=189) (n=181) (n=180) (n=141) (n=190)

VEGETABLES	% Respondents			
	Fresh	Frozen	Canned	100% Juice
Snacks	47%	-	-	-
Dessert	2%	-	-	-
Smoothies/Beverages	18%	-	-	38%
As is	70%	-	-	65%
Baking	19%	-	-	-
Side dish	77%	89%	84%	-
In salads	80%	13%	10%	-
Casseroles	36%	46%	47%	-
Soups/stews	55%	49%	53%	31%
Stir-fry	53%	50%	19%	-
Add to sauces/salsas	34%	17%	15%	24%
Other	1%	1%	1%	4%

(n=193) (n=196) (n=199) (n=113)

Empty boxes indicate that the category was not presented to the respondent.

Only asked of respondents who reported usually keeping the form of fruit or vegetable in question available in their home.

Purchase Frequency and Wastage

Fresh and fresh-cut fruit and vegetables and 100% fruit juice are the most likely forms of fruits and vegetable to be purchased weekly (Chart 29). There is very little reported wastage for all forms of fruits and vegetables (Chart 30), though more wastage for fresh and fresh-cut.

Promoting the healthfulness, wide variety, and convenience of different forms of fruits and vegetables, and demonstrating creative ways to include different forms in meals and snacks will help mothers carry out their intentions to include more fruits and vegetables in their families' diets.

Availability in the Home

Availability of fruits and vegetables in the home has been associated with higher intakes, particularly in children.⁹¹⁻⁹³ It has been suggested that availability may be a determinant of consumption by making choosing fruits and vegetables easy, stimulating consumption through visual cues, and increasing preference through consistent exposure.⁹⁴ Encouraging a home environment that facilitates choosing fruits and vegetables is a practical way to promote consumption. Furthermore, food familiarity has been shown to be a predictor of consumption and making fruits and vegetables available at all eating occasions will cultivate eating patterns that include them.⁹⁵

Chart 29: Moms' Reported Frequency of Fruit & Vegetable Purchases, 2015

How often do you go to the store to purchase the following?

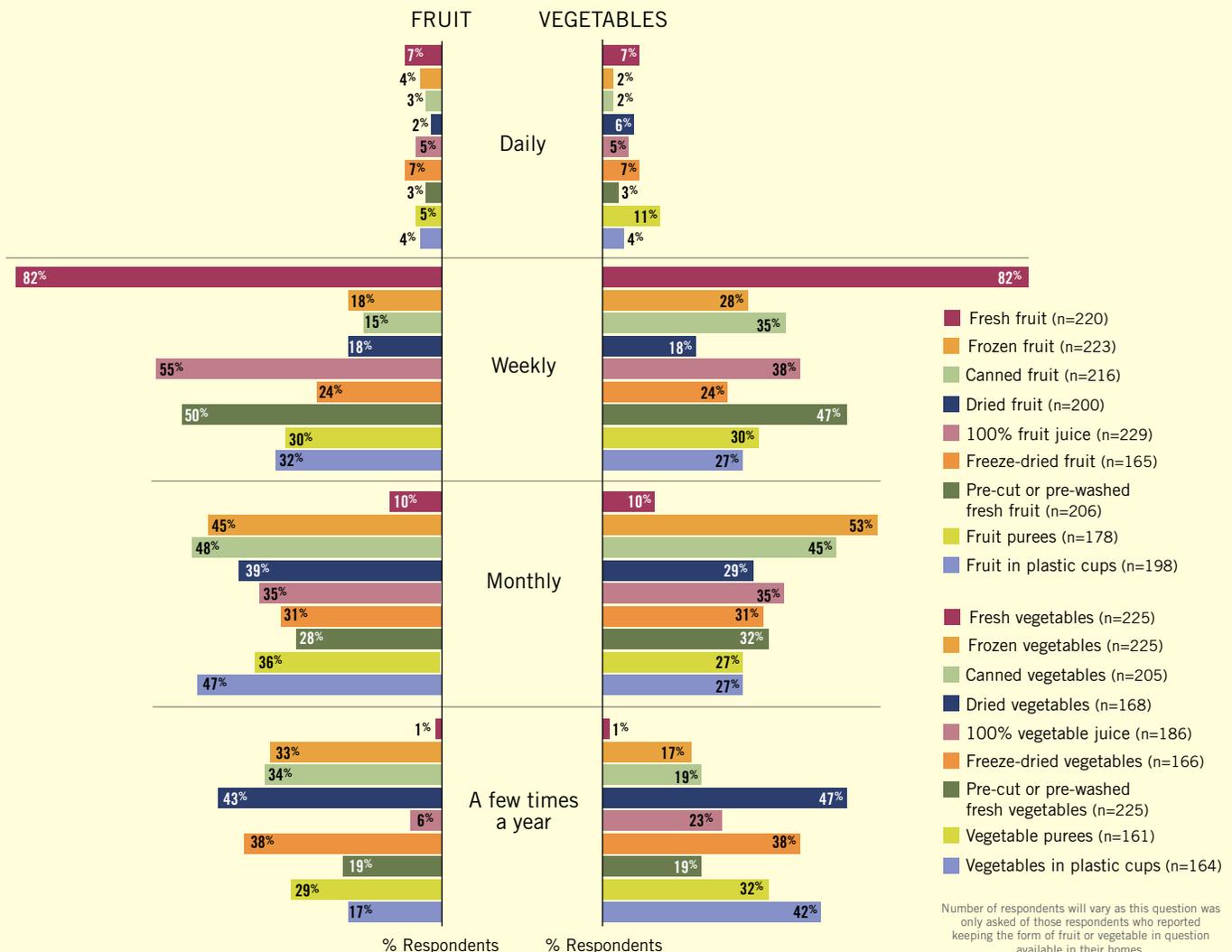
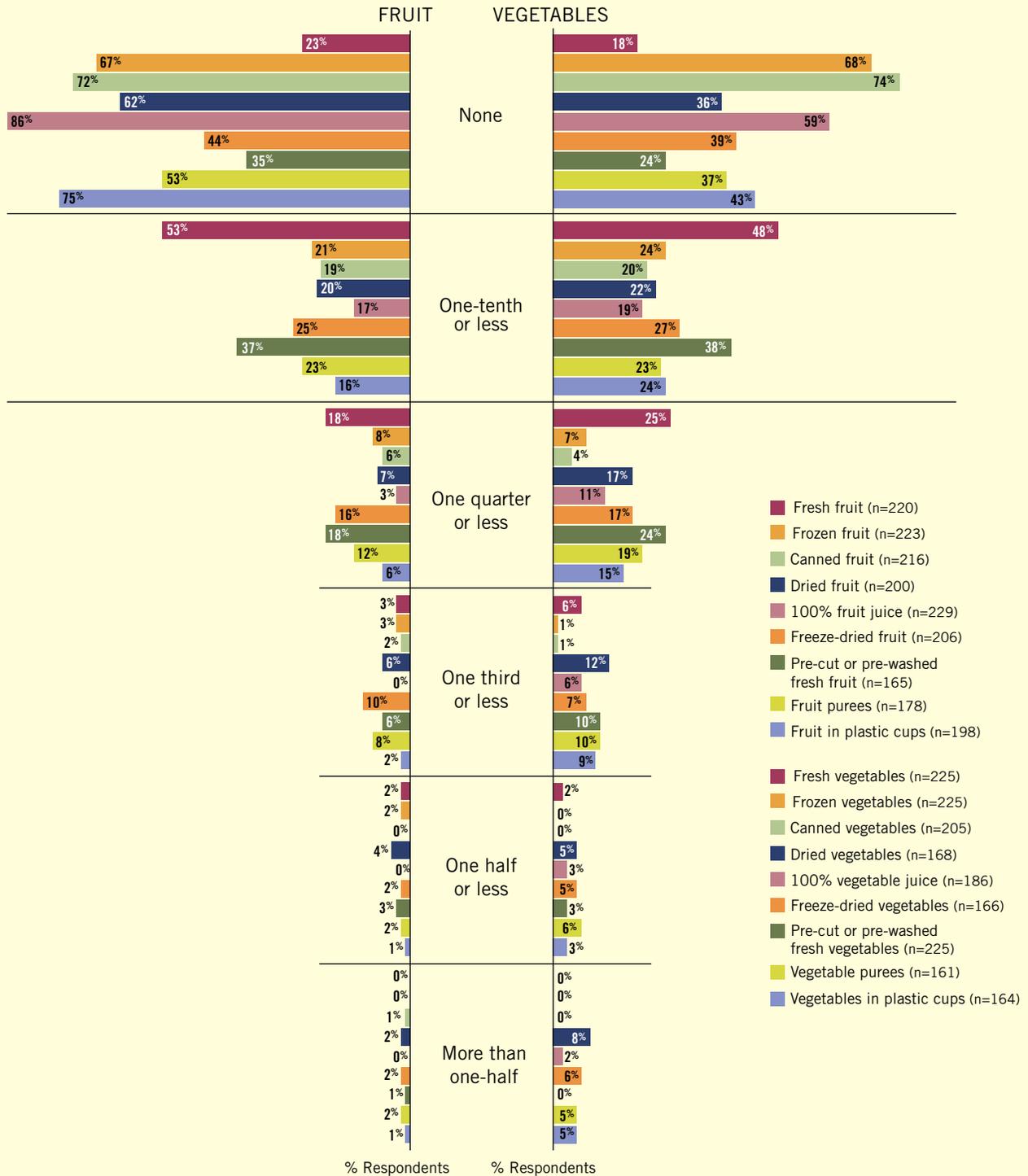


Chart 30: Moms' Reported Fruit & Vegetable Wastage, 2015

How much of the various forms of fruits and vegetables that you buy do you throw out?



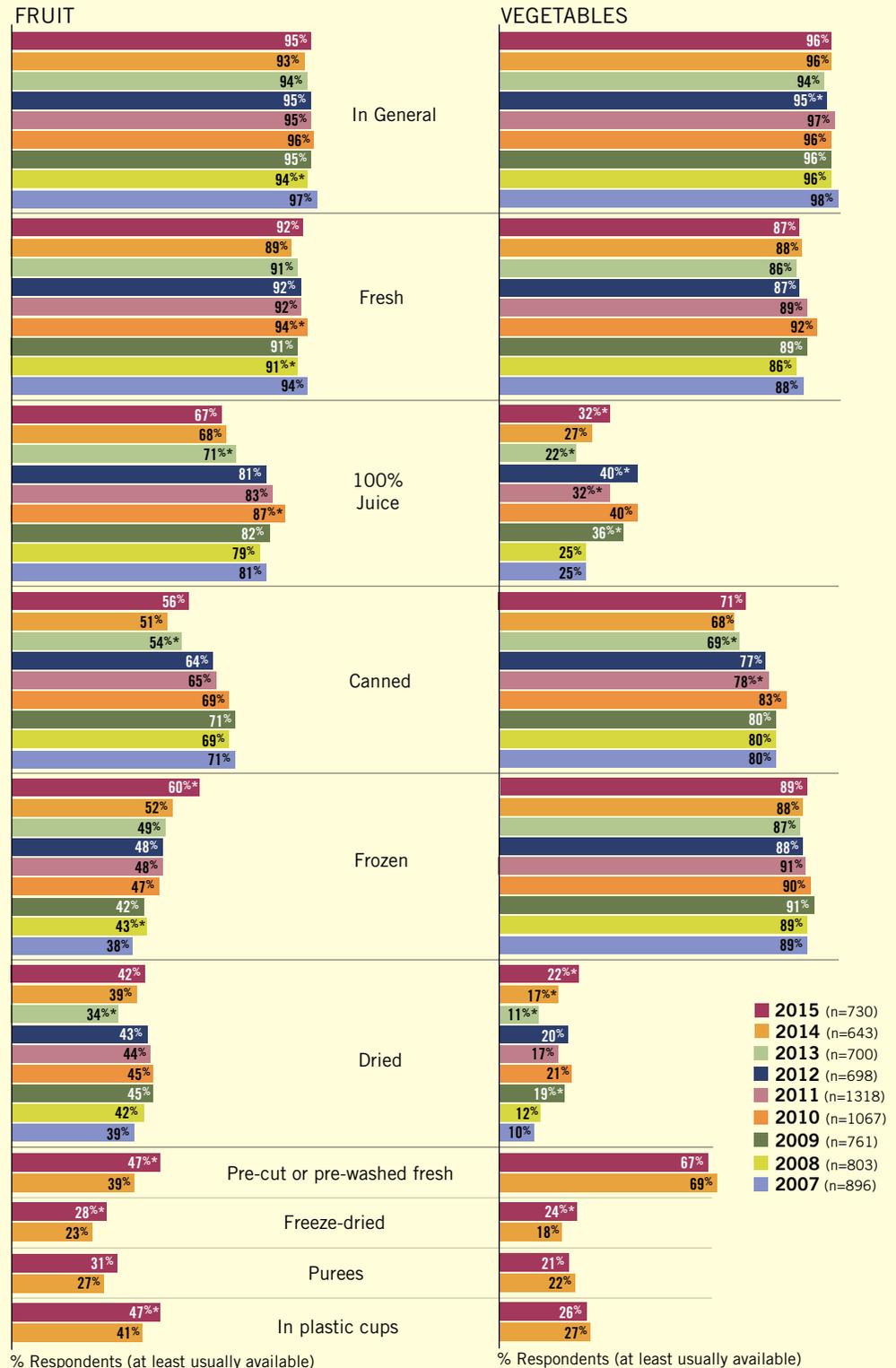
Number of respondents will vary as this question was only asked of those respondents who reported keeping the form of fruit or vegetable in question available in their homes.

The majority of moms indicated that fruits and vegetables were at least usually available in the home (Chart 31). Availability of most forms of fruit in the home increased in 2015. The exception was 100% juice, which continued on its 5-year decline. Frozen fruit availability in the home has seen a steady increase since 2007, with a significant increase in 2015 over 2014. Dried and canned fruit availability in the home had been trending downward since 2007, though a recent upward shift in both has stemmed the decline. Fresh fruit also increased in 2015, having dipped in 2014. Fruit that was pre-cut, freeze-dried, and in plastic cups increased significantly in the home in 2015. Higher income households were significantly more likely (96%) than lower income households (91%) to have fruit generally available.

In terms of vegetables, canned vegetables appeared to be trending downward in home availability, though there was an increase in 2015. Dried vegetables and vegetable juice were both significantly more available in the home in 2014 and 2015. Fresh and frozen vegetables have remained relatively stable over time, as did vegetables that were pre-cut, pureed, or in plastic cups (Chart 31). Freeze-dried vegetables were significantly

Chart 31: Moms' Reported Availability of Different Forms of Fruits & Vegetables in the Home

Please rate the availability of fruits and vegetables in your home.



*Represents statistically significant difference from previous year. Represents top 3 box score in 7-point Likert Scale.

higher in 2015 over the prior year, though are still in only one-quarter of all households. Higher income households were significantly more likely (95%) than lower income households (91%) to have vegetables generally available.

Chart 32 outlines why a particular form of fruit or vegetable was not available in the home in 2015. For moms who said they didn't have fresh or pre-cut fruit and vegetables in the home, it

was primarily because they were believed to spoil too quickly or be too expensive despite the fact that these seemed most preferred by families. The open-ended 'other' category elicited responses primarily about how fresh fruit is out of season. Those who didn't have pre-cut fruit or vegetables said they said it was just as easy or less expensive to do it themselves, or they didn't trust the food preparers to keep the food safe.

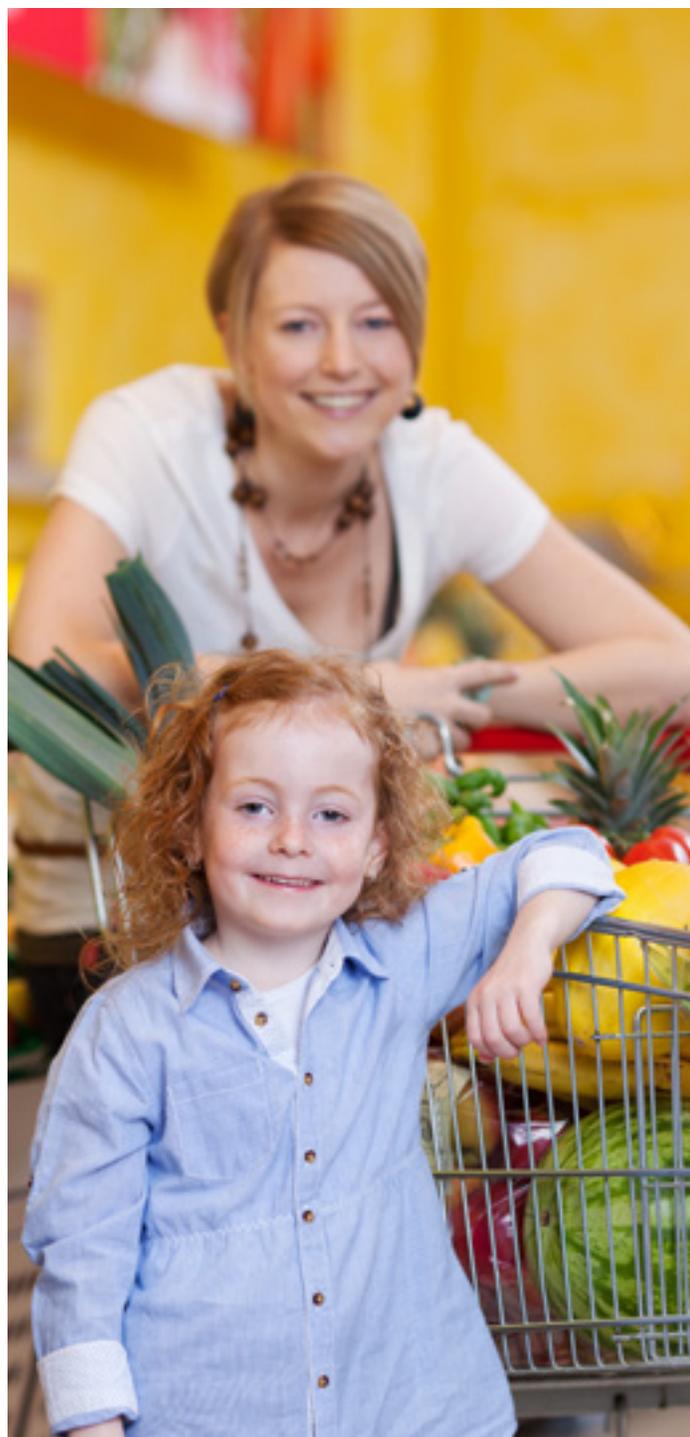
Chart 32: Moms' Reported Reasons for Not Keeping Different Forms of Fruits & Vegetables in the Home, 2015

What reasons best describe why the following types of fruits and vegetables are not usually available in your home? (Please select all that apply.)

FRUIT	Fresh fruit (n=69)	Frozen fruit (n=147)	Canned fruit (n=145)	Dried fruit (n=140)	100% fruit juice (n=151)	Pre-cut/pre-washed fruit (n=145)	Freeze dried fruit (n=148)	Fruit purees (n=158)	Fruit in plastic cups (n=156)
Don't use	7%	43%	20%	31%	17%	14%	34%	39%	15%
Too expensive	57%	15%	6%	17%	17%	60%	14%	13%	37%
Non't know how to use	3%	6%	0%	5%	0%	1%	9%	13%	0%
Less healthy	1%	7%	47%	12%	37%	10%	7%	8%	44%
Spoils too quickly	59%	3%	1%	2%	5%	34%	1%	4%	2%
Not available where I shop	0%	1%	0%	2%	0%	8%	13%	4%	2%
I or my family doesn't like	10%	17%	26%	40%	12%	6%	31%	25%	13%
Added preservatives	3%	5%	43%	4%	20%	10%	5%	12%	27%
Artificial ingredients	3%	2%	30%	4%	15%	3%	3%	8%	28%
Too time-consuming to prepare	6%	14%	1%	1%	0%	3%	1%	1%	0%
Too much sugar	4%	10%	50%	17%	57%	3%	6%	14%	49%
Too much sodium (salt)	1%	1%	11%	3%	1%	1%	3%	3%	5%
Never heard of this type of fruit	0%	0%	0%	0%	0%	0%	7%	3%	0%
VEGETABLES	Fresh vegetable (n=98)	Frozen vegetable (n=104)	Canned vegetable (n=153)	Dried vegetable (n=163)	100% vegetable juice (n=159)	Pre-cut/pre-washed vegetable (n=143)	Freeze dried vegetable (n=150)	Vegetable purees (n=164)	Vegetables in plastic cups (n=166)
Don't use	13%	37%	24%	37%	26%	20%	37%	40%	29%
Too expensive	31%	7%	3%	10%	17%	48%	14%	5%	19%
Non't know how to use	9%	8%	1%	15%	3%	3%	13%	12%	1%
Less healthy	0%	16%	48%	8%	5%	13%	9%	5%	13%
Spoils too quickly	60%	5%	1%	2%	5%	38%	1%	4%	3%
Not available where I shop	3%	2%	0%	11%	2%	5%	15%	7%	12%
I or my family doesn't like	29%	40%	35%	31%	56%	12%	26%	32%	22%
Added preservatives	1%	17%	44%	9%	8%	15%	7%	10%	11%
Artificial ingredients	1%	9%	24%	6%	4%	10%	4%	7%	9%
Too time-consuming to prepare	14%	6%	3%	3%	1%	5%	1%	4%	0%
Too much sugar	2%	2%	12%	1%	8%	3%	2%	7%	6%
Too much sodium (salt)	3%	10%	53%	3%	11%	4%	5%	7%	8%
Never heard of this type of vegetable	0%	0%	0%	0%	0%	0%	11%	8%	9%

Only asked of respondents who reported never or only occasionally keeping the form of fruit or vegetable in question available in their home. Bolded numbers indicate the most prominent reasons why each form of fruit or vegetable is not usually available in the home.

If frozen fruit was not in the home, it was primarily because they simply don't use them. When asked if there are other reasons, some said they didn't like the "mushiness" of thawed frozen fruit, they lacked freezer space, or worried about freezer burn. If frozen vegetables were not in the home, it was primarily because they don't like them or don't use them. A small number of moms indicated that they had limited freezer space.



Moms had particular concern about canned fruits and vegetables, stating that they were less healthy, had added preservatives, and too much sugar in fruit or too much sodium in vegetables. The open-ended 'other' category about why canned fruit or vegetables were not available elicited responses primarily about concern with the can itself or how they preferred fresh.

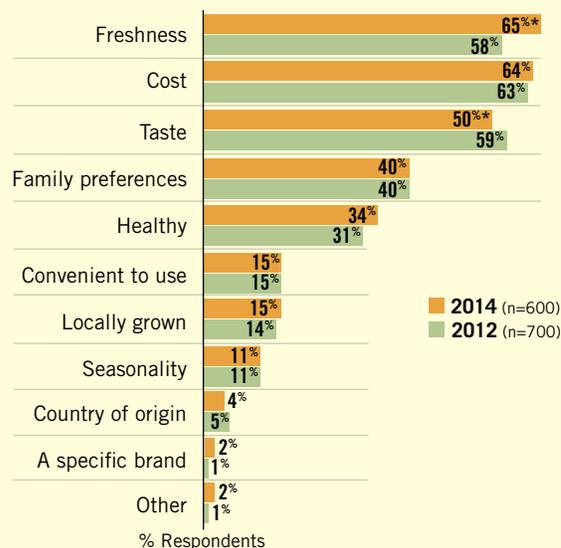
If dried fruit was not available in the home, it was largely due to disliking them and finding them too expensive. If dried vegetables were not available, it was because they don't use them, don't like them, or don't know how to use them.

For those who did not have 100% fruit juice available in the home, it was largely because of concern over too much sugar, and that they are less healthy with added preservatives. For those who did not purchase vegetable juice, disliking them was the primary reason, followed by simply not using them, they were too expensive, and had too much sodium.

Disliking or simply not using freeze-dried or pureed fruits and vegetables and vegetables in plastic cups were the primary reasons they were not in the home. Too much sugar was cited as the main reason fruit in plastic cups was not more available in the home.

Chart 33: Moms' Reported Factors of Importance When Shopping for Fruits & Vegetables

When shopping for fruits and vegetables, these factors are most important to me. (Please rank your top 3 choices.)



*Represents statistically significant difference between years.

Important Factors When Shopping

Factors identified as most important to moms when shopping for fruits and vegetables are freshness, cost, taste, and family preferences, though freshness was of higher importance and taste was of lesser importance in 2014 compared to 2012 (Chart 33). In 2015, fresh fruits and vegetables were identified separately from canned and frozen fruits and vegetables. Freshness, cost, taste, healthy, and family preferences were the top five factors of most importance when shopping for fresh fruits and vegetables (Chart 34). Four of these top five factors were the same when shopping for canned or frozen fruits and

vegetables: cost, taste, healthy, and family preferences. Not surprisingly, for both fresh and canned or frozen fruits and vegetables, cost was significantly more important to lower income than higher income households.

Finally, 29% of moms indicated that they needed help to better plan their grocery shopping to include the purchase of more fruits and vegetables. Of the suggested items that were offered to provide assistance, 51% indicated that smartphone apps that show easy recipes and online menus, which include shopping lists, would be of most help (Chart 35).

Chart 34: Moms' Reported Factors of Importance When Shopping for Fresh vs. Canned or Frozen Fruits & Vegetables, 2015

When shopping for [fresh, canned or frozen] fruits and vegetables, these factors are most important to me. (Please rank your top 3 choices.)

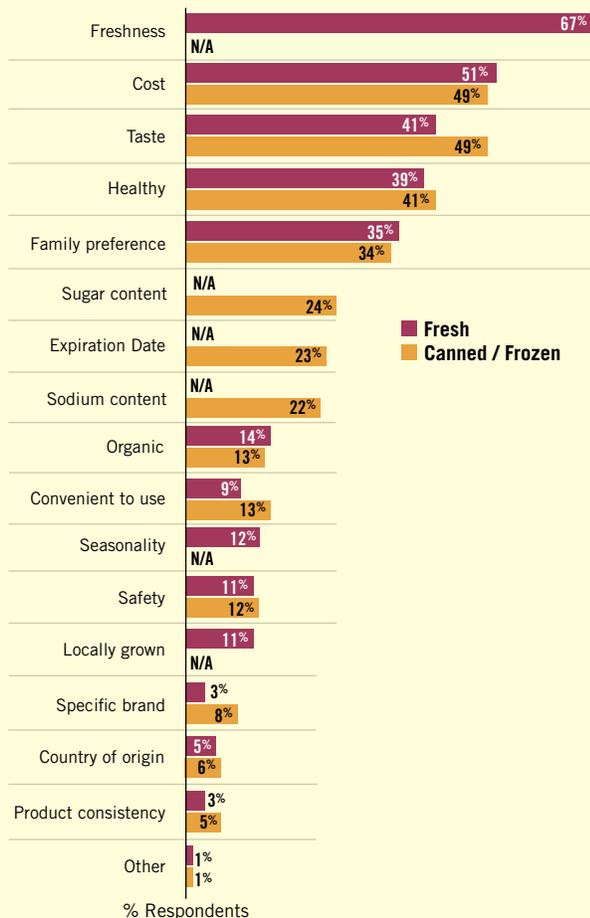
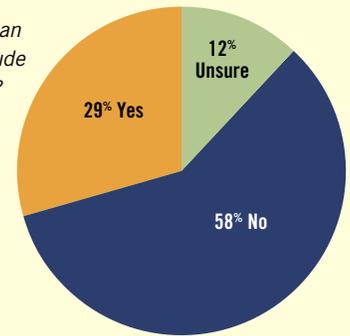
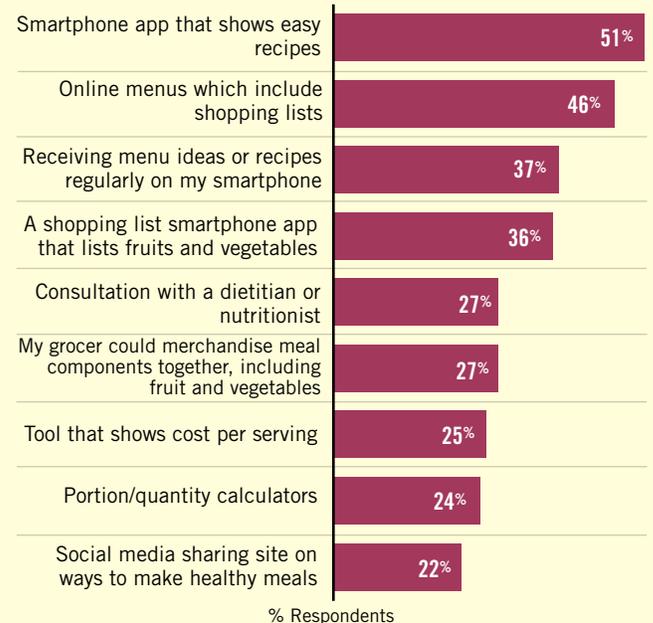


Chart 35: Moms' Grocery Shopping Needs, 2015

Do you need help to better plan your grocery shopping to include more fruits and vegetables?



[If yes,] which of the following would be helpful to you in better planning your grocery shopping to include more fruits and vegetables?



Barriers

Between 2007-2009, questions about barriers to eating more fruits and vegetables varied slightly from year to year, in an effort to better understand obstacles. The question, however, remained fairly consistent since 2010 (**Chart 36**). The primary barrier to including more fruits and vegetables in family meals was the different likes and dislikes of family members. In a qualitative sub-study investigating barriers to increasing intake of fruits and vegetables in an intervention study, women participants both anticipated and reported that children and male partners were obstructive to their efforts.⁹⁶ Mothers will prepare only those fruits and vegetables that the family likes which may limit the variety served if children are picky eaters or the husband or significant other does not like fruit or vegetables. Furthermore, the conflict with family members over eating or even just trying a fruit or vegetable may seem overwhelming. Providing support, encouraging perseverance, and offering practical suggestions, especially from the experience of others, can assist moms in their efforts. Additionally, moms may benefit from knowing they are not alone and that the most important thing is to keep trying.

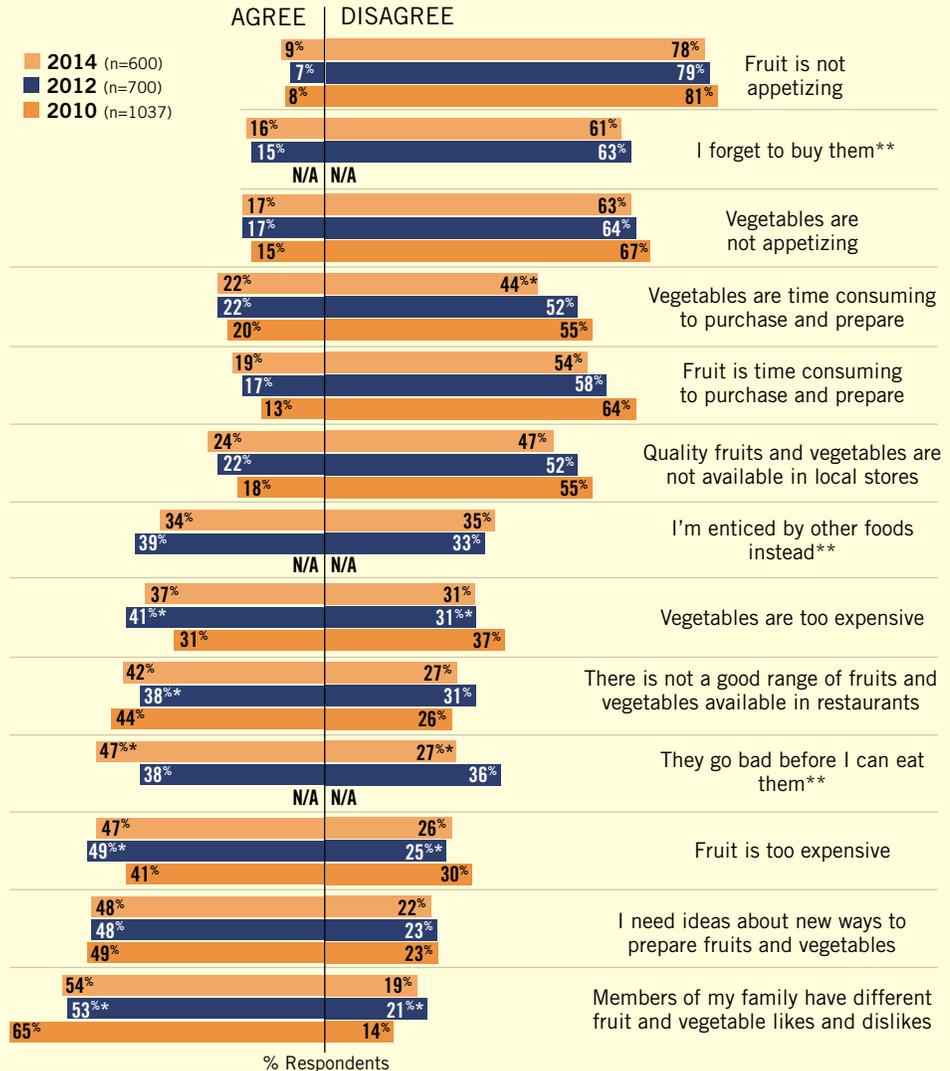
Other top barriers included needing ideas about new ways to prepare fruits and vegetables, followed by concern over cost of fruit, and spoilage (**Chart 36**). In other studies, cost is also reported as a barrier to healthful eating, including fruits and

vegetables, especially for low income populations.⁹⁷⁻¹⁰³

However, analysis by the USDA Economic Research Service (ERS) and others indicate that the total recommended cups of fruits and vegetables each day can be purchased for \$2.50, or 50 cents per cup.^{104, 105} In fact, when measured on the basis of edible weight or average portion size, grains, vegetables, fruit, and dairy foods are less expensive than most protein foods and foods high in saturated fat, added sugars, and/or sodium.¹⁰⁶ Only when

Chart 36: Moms' Perceived Barriers to Increased Fruit & Vegetable Consumption

Please indicate your level of agreement or disagreement in relation to how difficult each is for you personally to include fruits and vegetables in meals and snacks.



*Represents statistically significant difference from previous year.

**Not included as an option in 2010.

Responses do not equal 100% because mid-point in 5-point Likert Scale was omitted.

measured on price per calorie were healthy foods higher priced, not surprising since healthy foods are lower in calories. Finally, if the cost of preparation time is factored in, canned and frozen fruits and vegetables are an even better value.^{107,108} Continued messaging by health professionals on how to eat healthfully on a budget, including using canned and frozen to help reduce spoilage, is important to overcome some key barriers.

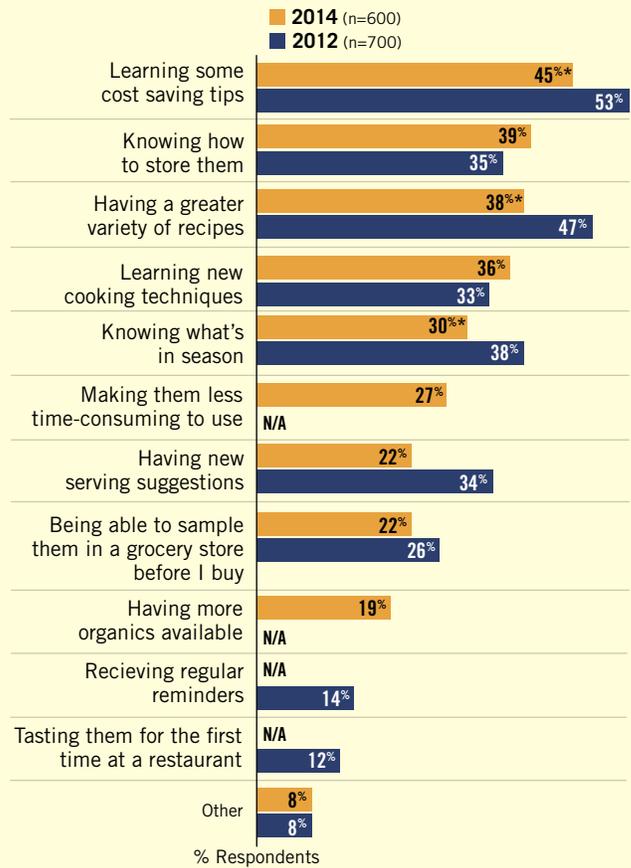
Overcoming Barriers

When moms were asked what would be most useful to help them eat more fruits and vegetables, their perceived useful tips remained relatively stable between 2012 and 2014 in terms of order. In both years moms responded that learning some cost savings tips, knowing how to store them, and having a greater variety of recipes would be most helpful (Chart 37). Note that the question in 2014 differed slightly from 2012. Different tips were included as potential responses each year. In 2014, having more organics available and making them less time-consuming to prepare were new response options. These replaced two responses from 2012, which were to receive regular reminders and to try tasting them for the first time at a restaurant. Respondents could select all that applied, as opposed to rank-ordering responses, so a comparison between the two years is still useful though not an exact comparison. Having a variety of recipes and new serving suggestions, knowing what's in season, and learning cost-saving tips were down significantly in 2014 from 2012, though these still ranked as top responses about what would aid them in eating more fruits and vegetables.

In terms of organics, 19% of moms indicated that it would be helpful to have more organics available in 2014 (Chart 37). In 2015, an equal number of moms reported that they did (35%) and did not (35%) feed their children organic fruits and vegetables (Chart 38). This is consistent with recent Hartman Group research, where 36% of consumers report purchasing organic foods of any kind in the past month and parents of young children (0-8 years old) using them more frequently (51%).¹⁰⁹ Organic users typically skew to those with higher income, higher education, and who are younger.¹¹⁰ Indeed, in 2015, lower income households reported using fewer organic fruits and vegetables than higher income households (Chart 38), though not significantly fewer.

Chart 37: Perceived Most Useful Tips to Help Moms Eat Fruits & Vegetables

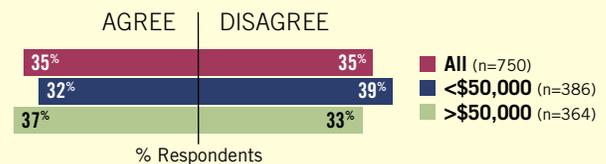
What would be most useful to help you eat more fruits and vegetables? (Please select all that apply.)



*Represents statistically significant difference between years.

Chart 38: Moms' Use of Organic Fruit & Vegetables, 2015

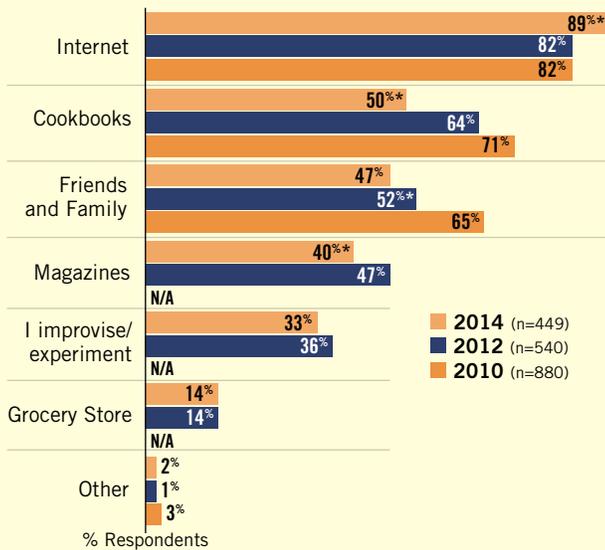
I feed my child(ren) organic fruits and vegetables.



Responses do not equal 100% because mid-point in 5-point Likert Scale was omitted.

Chart 39: Moms' Reported Sources of Information to Find Recipes

Where do you normally go to find recipes?
(Please select all that apply.)

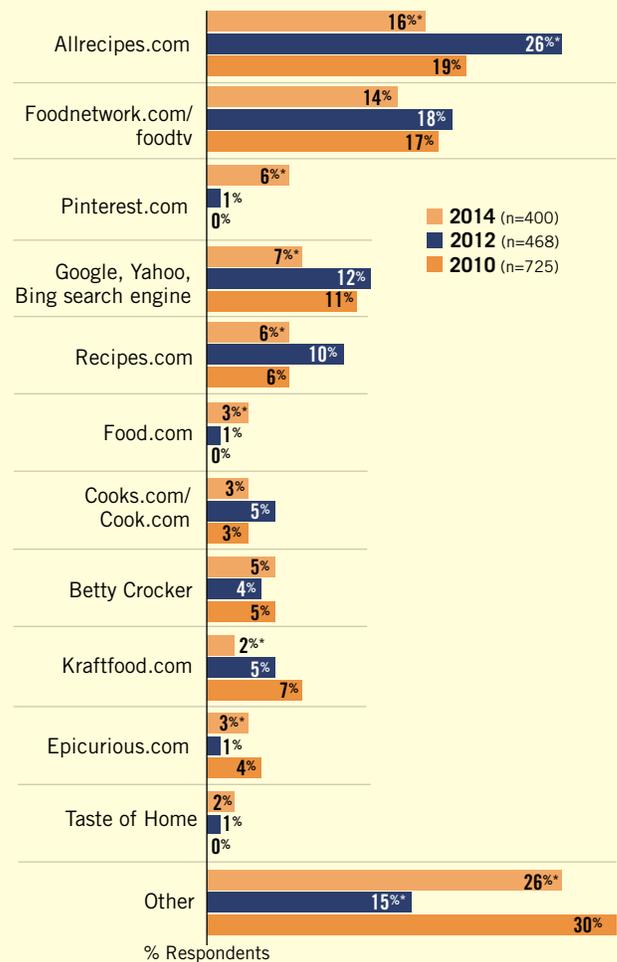


*Represents statistically significant difference from previous year.



Chart 40: Websites Used by Moms to Find Recipes

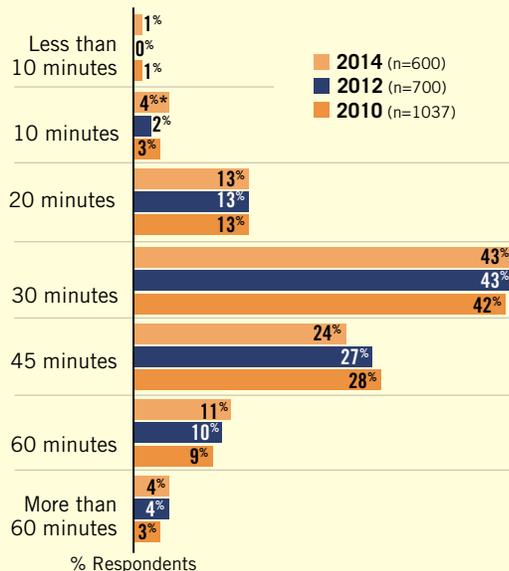
What websites do you normally use to find recipes?
(Open-ended question.)



This question was only asked of those who, in Chart 39, indicated they used the internet to find recipes.
*Represents statistically significant difference from previous year.

Chart 41: Moms' Reported Time Spent Making a Dinner Meal

On average, how much time do you spend making a dinner meal?



*Represents statistically significant difference from previous year.

For moms who used recipes, when asked about where they would normally go to find them, they cite cookbooks, family, friends, and magazines significantly less frequently and the internet significantly more frequently between 2010 and 2014 (Chart 39). For moms who cited the internet as a source for recipes, an open ended question about which websites they visited shows highest popularity for Allrecipes.com and Foodnetwork.com, though there was a decreased use of Allrecipes.com and increased popularity of Pinterest and Food.com in 2014 compared to two years earlier (Chart 40). Other responses were primarily single mentions of other sources, notably websites or blogs.

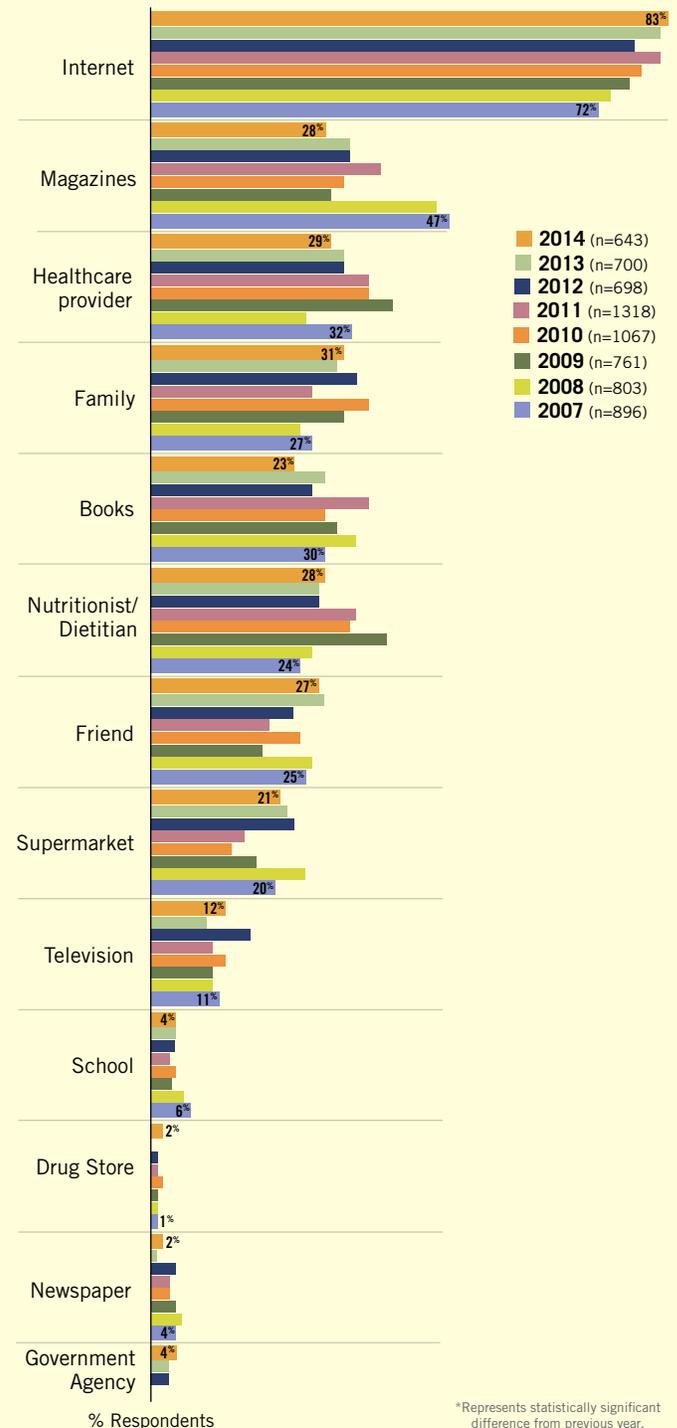
Because time was identified as a key barrier to increased fruit and vegetable consumption, a question to understand how much time moms spend making a dinner meal was included in the survey. Responses remained fairly stable over time, with an average of 60% of moms reporting spending 30 minutes or less making a dinner meal in 2010, 2012, and 2014. In 2014, significantly more moms responded that they spent less time (10 minutes) making the dinner meal than in 2012 (Chart 41).

Sources of Information /Mindshare Scores

In 2007, the Internet was selected by 72% of respondents as either their first, second or third choice of where they would go to obtain information about fruits and vegetables. By 2014, the Internet remained the preferred source of information for 83% of respondents while magazines and books were less influential (Chart 42). This isn't unexpected as more information is available electronically. The active use of the Internet to obtain information about fruits and vegetables by mothers is why PBH developed a website, MoreMatters.org, specifically for this audience and why PBH has grown its social media presence on Facebook, Twitter, Instagram, and Pinterest. Continued promotion and expanded use of this website and leveraging social media are inexpensive ways to reach mothers with information that they need.

Chart 42: Moms' Sources of Information About How to Get Their Family to Eat More Fruits & Vegetables

If you wanted information about how to get your family to eat more fruits and vegetables, where would you go to obtain it? (Please rank your top 3 choices.)

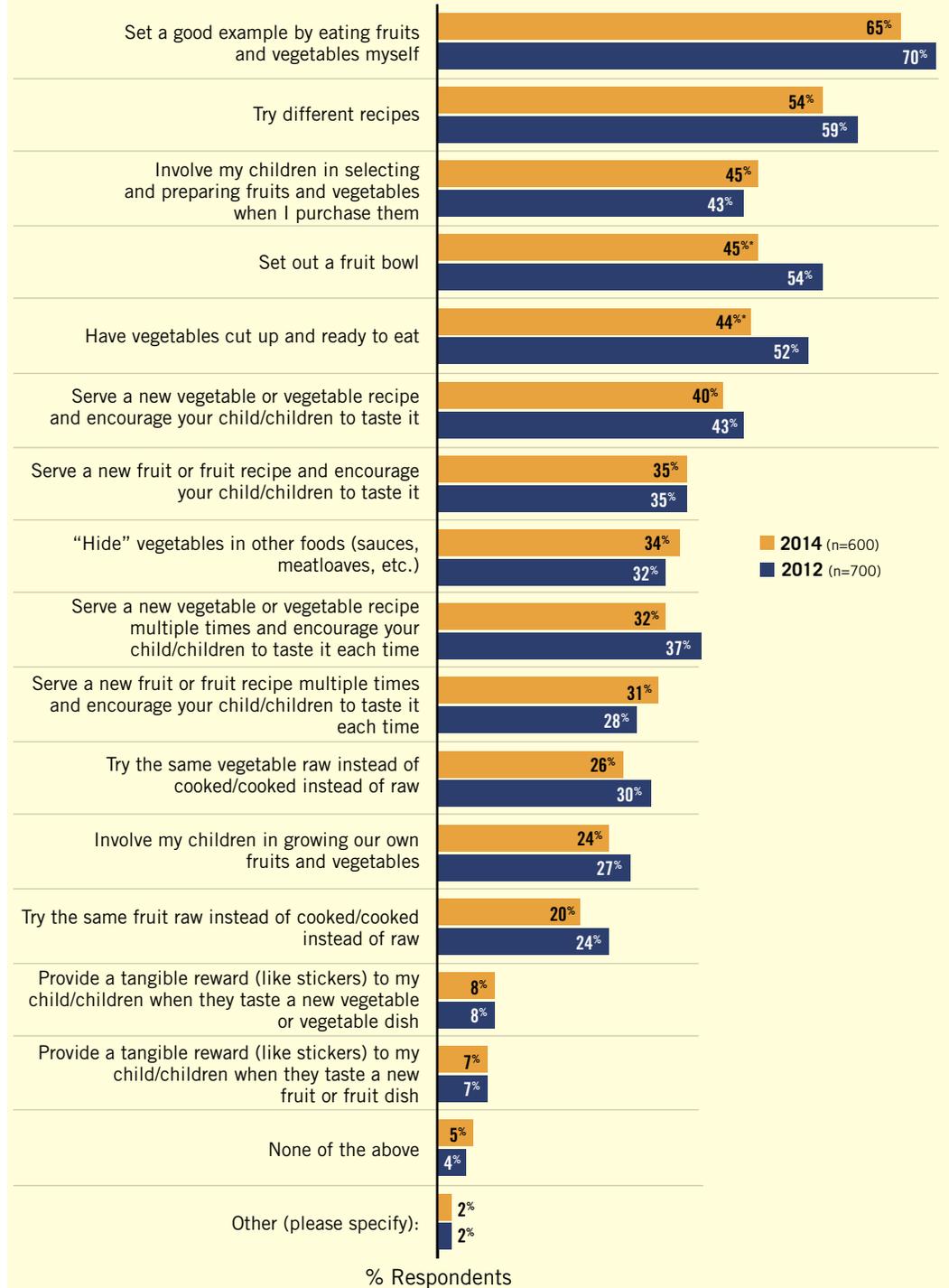


Moms' Varied Approaches

The Fruits & Veggies—More Matters campaign has provided mothers with various suggested approaches to encourage their family's consumption of fruits and vegetables. These suggestions have been based primarily on approaches that have been published in the scientific literature.¹¹ Moms have tried several of these different approaches (Chart 43) with varying success (Chart 44). The most common approach is to set a good example, which was very (41%) or somewhat (51%) successful in 2014. The most successful approaches included setting out a fruit bowl, involving children in growing, selecting, or preparing fruits and vegetables, having vegetables cut up and ready to eat in the refrigerator, and hiding them in other foods. Several of these most successful approaches, however, were tried by significantly fewer moms in 2014 compared to 2012. One of the approaches tried the least, providing a tangible reward like stickers, seems to be moderately successful as well. The least successful approach seems to be serving a new vegetable or vegetable dish multiple times and encouraging their child to taste it before 'giving up.'

Chart 43: Moms' Approaches to Increase Their Family's Fruit & Vegetable Consumption

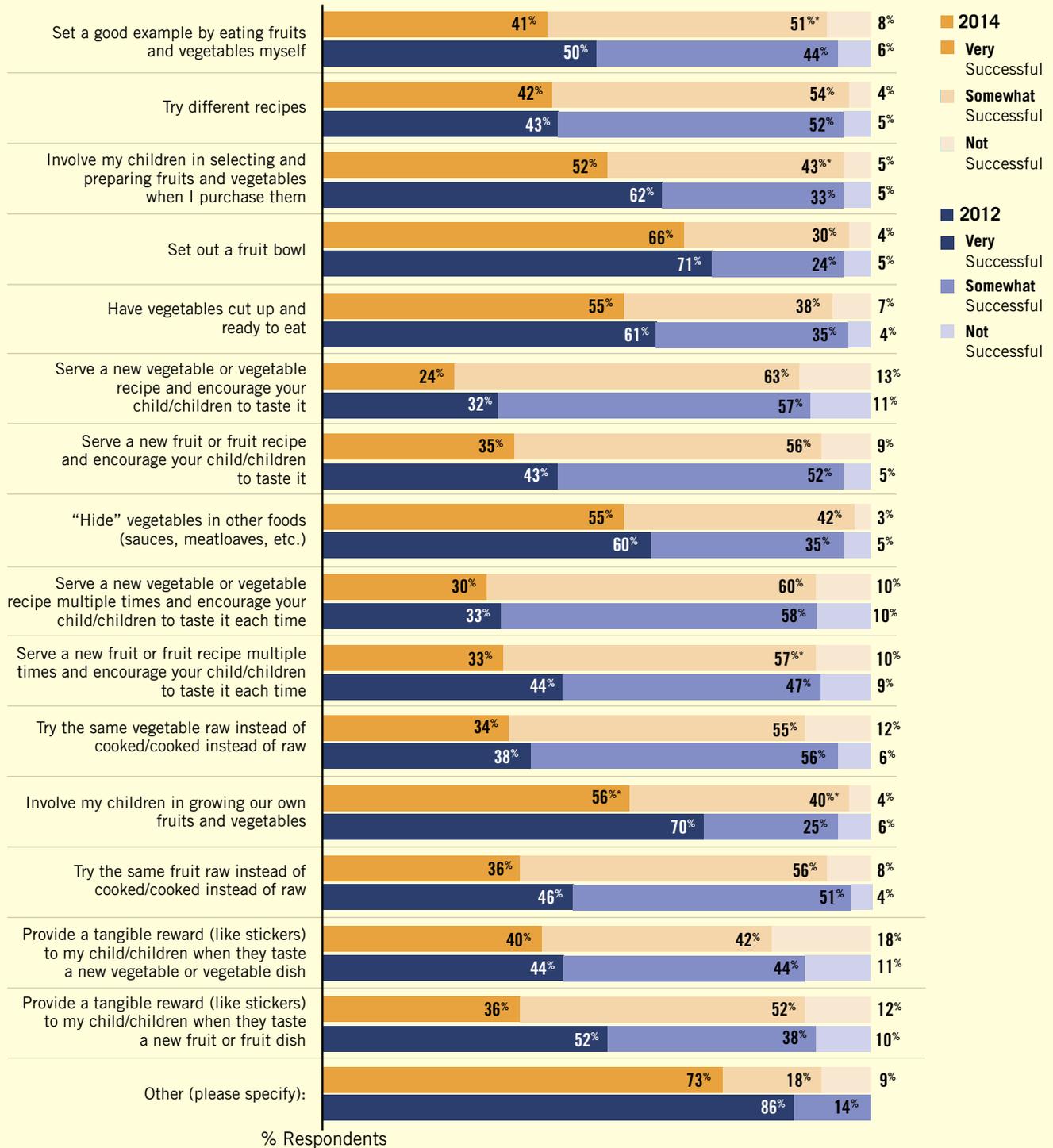
Which of the following approaches have you tried to encourage your family to eat more fruits and vegetables? (Please select all that apply.)



*Represents statistically significant difference between years.

Chart 44: Success of Moms' Approaches to Increase Their Family's Fruits & Vegetable Consumption

Success of the approaches that Moms have tried to encourage their family to eat more fruits and vegetables.



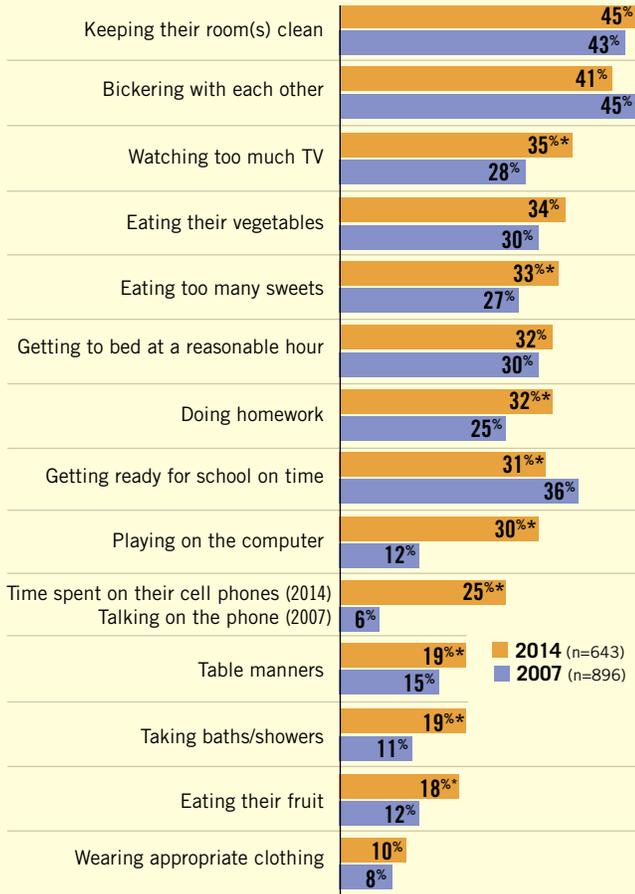
This question was only asked of those who, in Chart 43, indicated they had tried the approach.
 *Represents statistically significant difference between years.

Picking Your Battles

When asked about major ‘battles’ with their children, moms reported several areas in 2014 that were more of a battle with their children than they had been in 2007. These included watching too much TV, eating too many sweets, playing on the computer, doing their homework, time spent on cell phones, eating their fruit, demonstrating table manners, and taking baths/showers (Chart 45). The only ‘battle’ that significantly decreased was getting ready for school on time. Other battles with children that did not change significantly between 2007 and 2014 were keeping their rooms clean, eating their vegetables, bickering, getting to bed at a reasonable hour, and wearing appropriate clothing.

Chart 45: Moms’ Reported “Battles” with Their Children

As a parent, to what extent are the following situations a “battle” between you and your child(ren)?



% Respondents who answered “to a great extent”

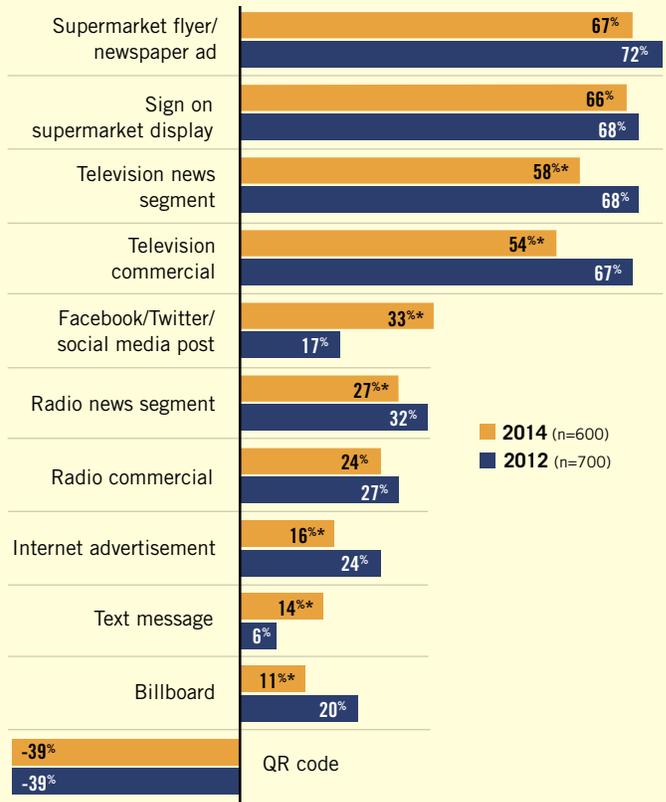
*Represents statistically significant difference between years.
Represents top 2 box scores in 5-point Likert Scale.

Communications Methods

As shown in Chart 46, moms report that signs on supermarket displays and supermarket flyers/newspaper ads rank higher than television, and much higher than radio, internet advertisements, billboards, and social media in terms of which communication method they find most effective when it comes to making a food decision. Over time, television, radio, internet advertisements, and billboards have declined significantly as effective sources for food decisions, with social media and text messages increasing significantly. Since most fruits and vegetables consumed in the U.S. are primarily purchased through grocery stores, and supermarkets continue to be the most effective food communication method to influence mom’s purchases, grocers are key to increasing fruit and vegetable sales and consumption.

Chart 46: Moms’ Response to Communication Methods Regarding Food

What would be your response to the following communication methods regarding a type of food that you or someone in your household may enjoy?



% Respondents who responded positively

*Represents statistically significant difference between years.
Percentages represent those who would stop, scan, listen, absorb information, do additional research, or purchase the product minus those who would completely ignore the communication.

Fruits & Veggies—More Matters

Fruits & Veggies—More Matters was launched in March of 2007 with the support of many stakeholders (see Appendix C). This section describes awareness of Fruits & Veggies—More Matters, its purchasing and motivational impact, how consumers became aware of the campaign, and affinity to the brand.

Awareness

Among moms, total “definite” awareness of the Fruits & Veggies—More Matters campaign grew from 11% in 2007, prior to the campaign launch, to 27% in 2015 eight years later (Chart 47). The noticeable decline in 2009 is likely due largely to the negative impact of the economy which took much focus off of healthy eating altogether. People were also shopping less frequently, and therefore less exposed to one of the primary places where they could learn about the campaign, the supermarket, as they were shopping in larger “discount” stores who were not promoting Fruits & Veggies—More Matters as much. Also, the relatively high awareness of the campaign two months prior to the March launch, is likely a combination of some retailers and growers/processors including the logo in-store and on-package, since licensing use of the Fruits & Veggies—More Matters logo to prepare for the launch started in mid-2006. Of course, there are also those who are convinced they’ve seen it, but have not.

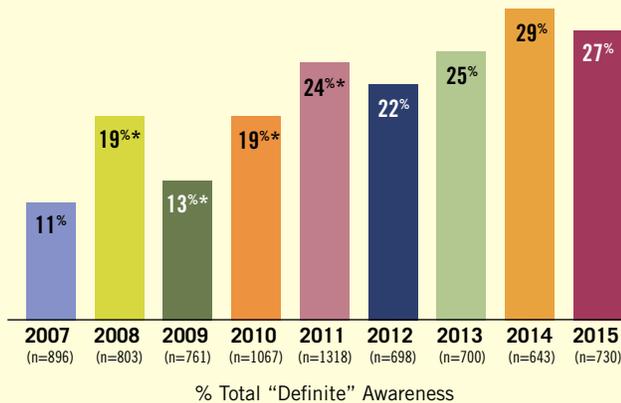


Purchasing Impact

When mothers in the 2015 annual survey were asked how seeing the Fruits & Veggies—More Matters logo affects their decision to purchase a product, 49% said they were more likely to purchase the product vs. 39% when this question was first asked in 2009 (Chart 48).

Chart 47: Moms' Awareness of the Fruits & Veggies—More Matters Logo

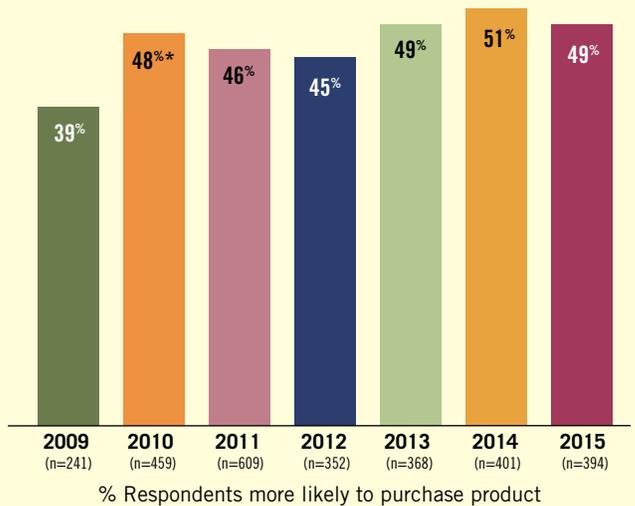
Which of the following statements best describes your level of familiarity with Fruits & Veggies—More Matters?



*Represents statistically significant difference from previous year. Represents top 3 box scores in 5-point Likert Scale.

Chart 48: Moms' Likelihood of Purchasing Products Carrying the Fruits & Veggies—More Matters Logo

How does seeing the Fruits & Veggies—More Matters logo affect your decision to purchase the product?



Only asked of those familiar with Fruits & Veggies—More Matters. *Represents statistically significant difference from previous year. Represents top 2 box scores in 5-point Likert Scale.

Motivational Impact

Of those who were aware of the Fruits & Veggies—More Matters logo, when asked how well it motivates them to help their family eat more fruits and vegetables, motivation levels have increased significantly from 24% in 2007 to 49% in 2015 (Chart 49), with a significant increase over the 38% who said this in 2014. When these same mothers were asked what use of the Fruits & Veggies—More Matters logo on a product means to them, they said that it means it was healthy (67%), provides a serving of fruit and/or vegetable (56%), and is nutritious (49%) (Chart 50).

Sources of Information

Mothers who were familiar with the Fruits & Veggies—More Matters campaign largely learned of it through supermarket displays and food packages (Chart 51). Supermarket promotions, the logo on qualifying food packages, and the Internet have been strong campaign pushes since the launch in 2007. This is consistent with the cumulative number of products carrying the Fruits & Veggies—More Matters logo (Chart 52), and the number of websites that link to MoreMatters.org (Chart 53). However, both supermarket displays and the internet were selected significantly less often by moms in 2015 as to how they became aware of

Fruits & Veggies—More Matters and are both near 2007 campaign levels. Regarding supermarkets' implementation of the Fruits & Veggies—More Matters campaign, more of them focused on using the Fruits & Veggies—More Matters brand on private label food packages and less on in-store displays over time in an effort to have a clean store appearance. The lower use of the Internet as a way to become aware of the Fruits & Veggies—More Matters campaign could be because 'social media' has surpassed the 'Internet' as a source of information. Social media as we know it today did not exist in 2007. The PBH survey should be altered in the future to reflect current vernacular.

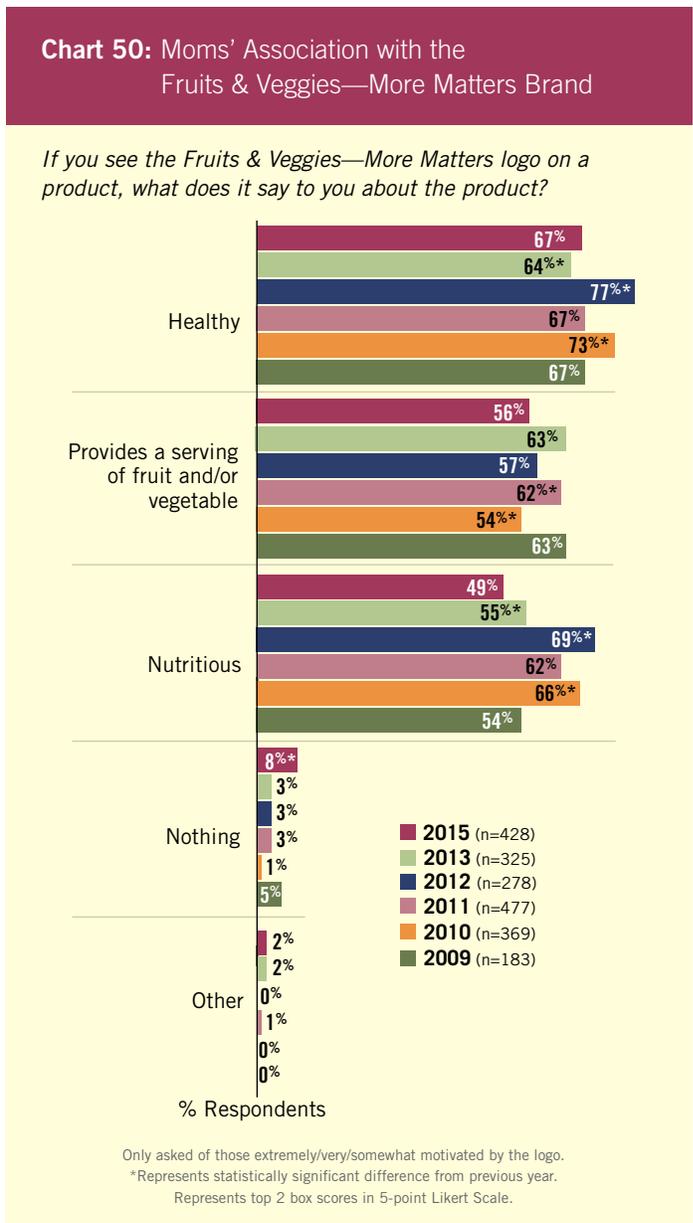
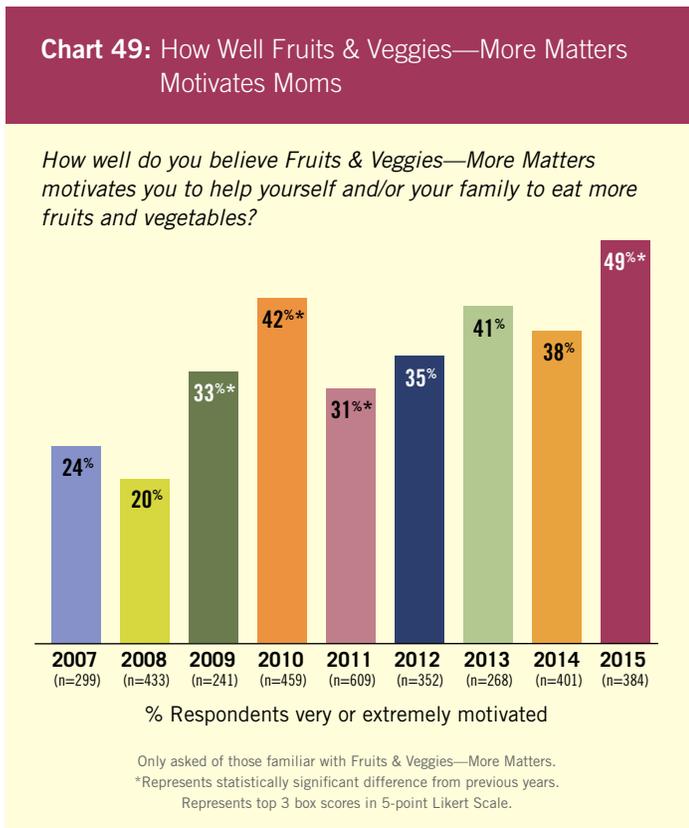
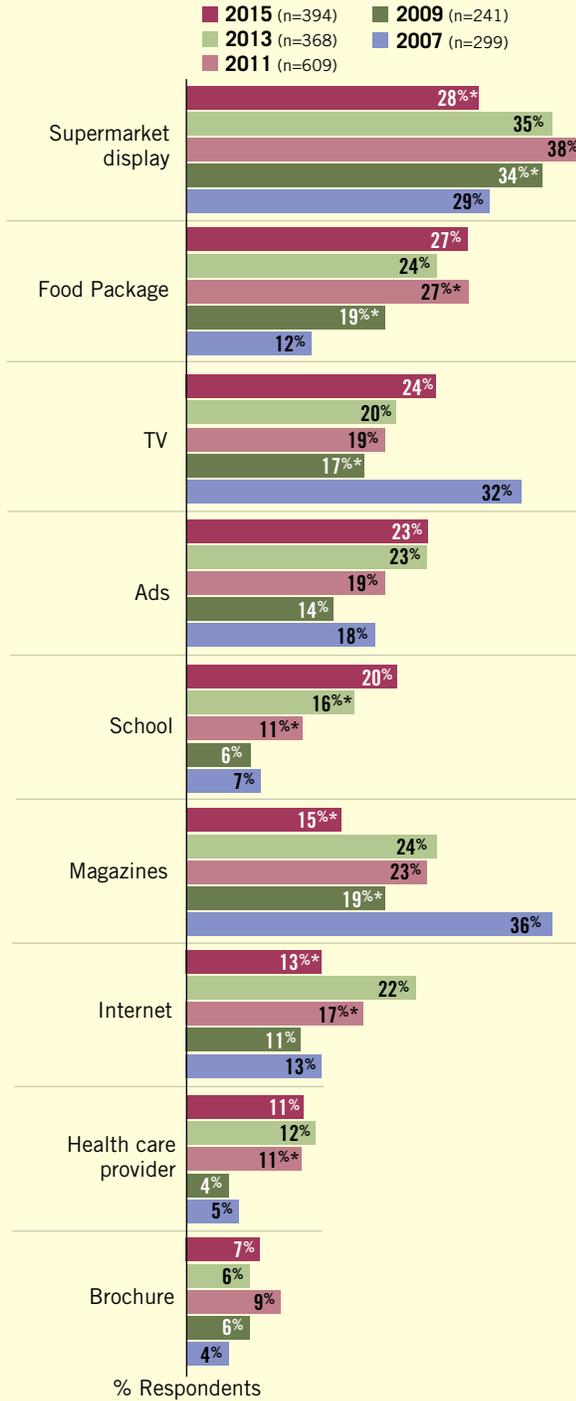


Chart 51: How Moms Have Become Familiar with the Fruits & Veggies—More Matters Logo

Where did you see or hear of Fruits & Veggies—More Matters? (Please select all that apply.)



Only asked of those who have definitely seen or heard about the logo.
 *Represents statistically significant difference from previous year.
 Represents top 2 box scores in 5-point Likert Scale.

In addition to becoming familiar with the brand through sources listed in **Chart 51**, other ways that moms became familiar with the brand in 2015 included the government (6%), other (6%), billboards (5%), word of mouth (4%), newspapers (3%), radio (2%), books (2%), university (2), and church (1%). Of these, only the government was significantly higher than the <1% reported in 2007. Of the 6% that cited 'other', most responses were that they couldn't remember where they had learned about it.

Chart 52: Number of Fruits & Veggies—More Matters Approved Labels

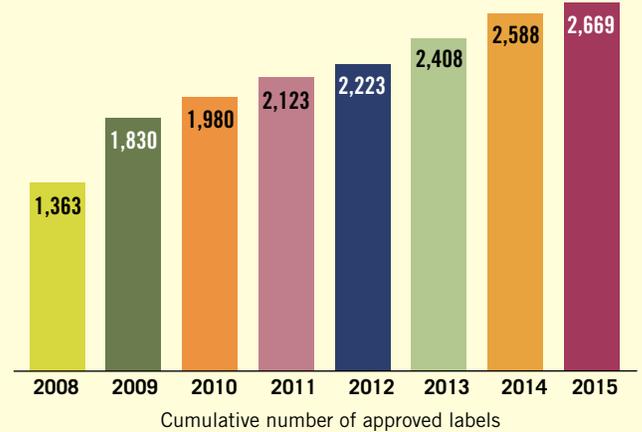
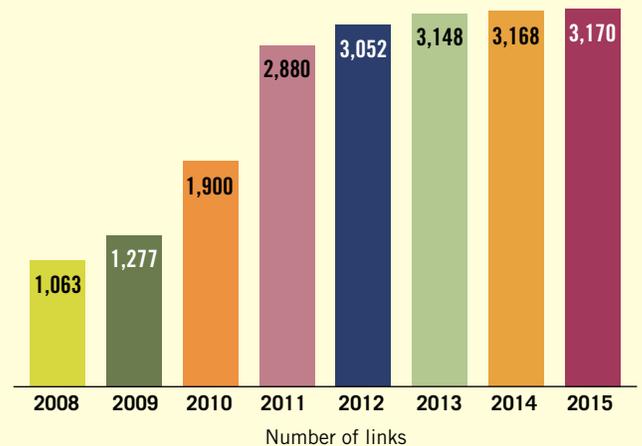


Chart 53: All Site Referrals to FruitsAndVeggiesMoreMatters.org

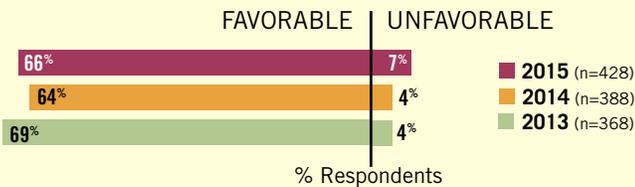


Brand Affinity

Two new questions were added in 2013 to better understand how moms perceive Fruits & Veggies—More Matters. Two-thirds of moms have a favorable opinion about the brand (Chart 54), which has not changed significantly over time. Moms particularly appreciate the campaign as a reminder to eat more fruits and vegetables (Chart 55). They also find it significantly more appealing, relevant, and trustworthy than they did in 2014.

Chart 54: Moms' Fruits & Veggies—More Matters Brand Favorability

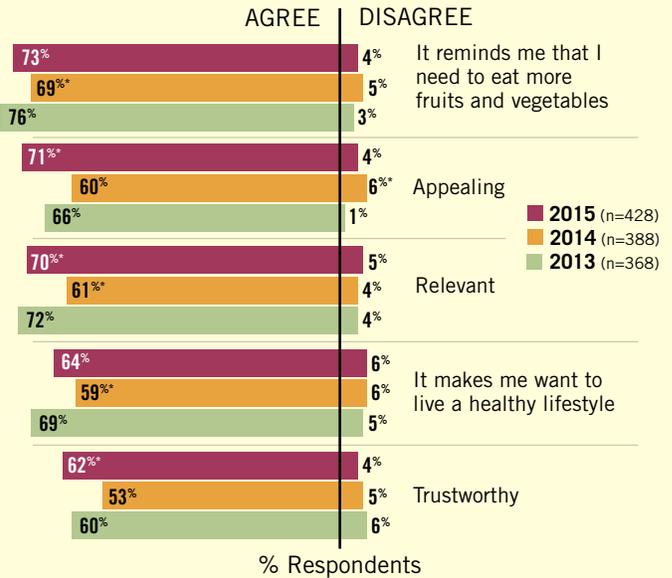
Taking everything into account from what you may have seen, read, heard or experienced, please rate your overall impression of Fruits & Veggies—More Matters.



Only asked of those aware of Fruits & Veggies—More Matters. Responses do not equal 100% because mid-point in 5-point Likert Scale was omitted.

Chart 55: Moms' Affinity Towards the Fruits & Veggies—More Matters Brand

Please rate your level of agreement or disagreement with the following statements regarding Fruits & Veggies—More Matters:



Only asked of those aware of Fruits & Veggies—More Matters. *Represents statistically significant difference from previous year. Responses do not equal 100% because mid-point in 5-point Likert Scale was omitted.



Appendix A. Methodology

Survey Design

OnResearch, Inc (Ontario, Canada), fielded all surveys. An initial online survey was conducted in October of 2006 with 500 moms for the purpose of preparing for the public relations launch and the baseline survey. Using 2006 survey responses, a preliminary baseline survey questionnaire was developed and pilot-tested with 73 GenX moms with one or more children under the age of 18 living in the home, who were recruited either in grocery stores (n=5) or on the former 5 A Day website (n=67). Items were analyzed using principal components factor analysis to identify 1 or 2 salient items to be included on the questionnaire for each construct. Items loading highest on a factor were selected for inclusion.

Most questions were answered using a 5 point Likert scale, with several questions that required open-ended responses. The Theory of Planned Behavior was used as a framework to ascertain psychosocial factors (social norms, perceived behavioral control, attitudes and intentions) related to consumption of fruits and vegetables.¹¹² Other constructs from Social Learning Theory that have been associated with fruit and vegetable intake in the scientific literature including self-efficacy and social support were also included.^{113,114} Finally, other questions assessed perceptions about fruits and vegetables and awareness of recommendations for intake.

The baseline survey was then fielded online February 2-9, 2007, prior to the March 19, 2007 launch of Fruits & Veggies—More Matters. Annual on-line follow-up surveys were conducted January 15-January 31 from 2008 through 2013. A monthly rolling survey was begun in 2014 to ensure that seasonal bias was minimized.

Each wave of the survey asks a series of questions of the respondents. These included screening questions to verify the qualifications of the respondents invited to participate, core questions asked each year, certain questions asked only in even or odd years or every third, fourth or fifth year, unique one-time-only questions, and demographic profiling questions.

Sample

OnResearch uses a variety of panel vendors. For all PBH surveys, one online panel provider was used to reduce risk of duplication of responses and to ensure consistency of method. The selected panel is from a U.S. headquartered company with locations and

panels around the world. The panel has been functioning for over a decade and is in compliance with ESOMAR and MRS (US) industry standards. The panel is used only for market research purposes to reduce bias responses. The U.S. consumer panel contains 3.25 million panelists who are usually on the panel from 1 to 4 years. Attrition and deliberate retirement of panelists necessitates ongoing recruitment to replenish the panelists. The panel vendor runs a multitude of recruitment campaigns, from email and online marketing channels with hundreds of diverse online affiliate partners and targeted websites. Panelists are supported by a dedicated team and have the option to unsubscribe at any time. Panel Management is compliant with market research industry standards, data protection and privacy laws. Because the sample for a survey is blended from several sources it is de-duplicated for each project. This is achieved during project set up and then Browser Fingerprinting technology is applied.

The sample selection for PBH's studies used a pre-profiled sample to minimize screen-outs and provide a better quality panelist experience. Basic demographic information (e.g. age, gender, region, household demographic) was collected at the time a panelist registered or joined the panel. A verification email and short survey were immediately sent to collect further profiling. Panelists have the option to enter profile information via their member page at any point. Profiling data is consistently updated. Panelists are prompted regularly to re-enter profiling criteria in order to ensure accuracy of segmentation and respondents.

Once the sample for the study was pulled, email invites were automatically randomized so as not to induce bias. Samples were also subject to category restrictions so that respondents who took part in surveys on fruits and vegetables over a 3 month period were excluded. Respondents were excluded from the sample if they had been invited to participate in other surveys within the prior 24 hours. In each survey invitation, panelists were informed about the survey topic in a general, non-specific, non-leading way before participation.

Panelists are rewarded for taking part in surveys with a structured incentive scheme, reflecting the length of survey and nature of the sample. The panel provider uses an incentive scale which is based on set time increments and the panelist profile. For example, a medical practitioner would generally be

paid a significantly higher incentive per completed survey than the average consumer. The incentive options allow panelists to redeem from a large range of gift cards, points programs, and partner products or services. All incentives are awarded only once the survey has been completed.

OnResearch manually verified and confirmed every completed survey, rejecting any that appeared to be a dishonest respondent. The criteria used to reject any potentially “dishonest” responses are:

Straightlining

Or answering scalar questions by clicking every answer on the scale the same value.

Speeding

People who answer the survey in a fraction of the normal or mean time that respondents normally complete the survey

Nonsense responses

Open ended responses that are consistently filled with nonsensical answers. E.g. “qerkljpoi”

Illogical responses (also apparent in straightlining)

Certain “test” questions are inserted to ensure that the respondent is reading and answering the question.

For example: a statement of preference or attitude may be stated in both the positive and negative. An honest respondent will answer the two in a consistent manner i.e. if the positive statement is scored a 5 on a five point scale of agreement, then the negative version should be scored a 1 or 2 on the same scale.

Overuse of non-response (i.e. “Don’t know”) or “flatlining”.

Analysis

In trend charts that included years 2007, 2008, and 2009, all data was weighted to fit income profiles of the 2008 raw data. Otherwise, no weighting occurred. Seasonal variations that might have occurred with the onset of the rolling survey in 2014 were reviewed by evaluating the four quarters in both 2014 and 2015. There were slight directional increases in mean fruit consumption in the third summer quarters,¹¹⁵ though not for vegetables, but this was not significant. Median consumption scores for both fruits and vegetables were consistent across all quarters. With so many imported fruits and vegetables readily available year-around, traditional seasonal variations appear to be muted. Since differences by season were minimal, no weighting for season occurred.

Methodology

All respondents were residents of the United States. The online survey was conducted via an online panel.

Wave	2015	2014	2013	2012	2011	2010	2009	2008	2007
Fielding Period	December 11 2014 - November 11 2015	December 12 2013 - November 6 2014	January 16-28 2013	January 23-31 2012	January 14-31 2011	January 15-29 2010	January 16-22 2009	January 18-22 2008	February 2-9 2007
Sample Size	n=750 (n=730 weighted)	n=600 (n=643 weighted)	n=700 (n=700 weighted)	n=700 (n=689 weighted)	n=1270 (n=1318 weighted)	n=1037 (n=1067 weighted)	n=789 (n=761 weighted)	n=803	n=894 (n=896 weighted)
Confidence Level (within year)	3.6% (19/20 times)	4% (19/20 times)	3.7% (19/20 times)	3.7% (19/20 times)	2.7% (19/20 times)	3% (19/20 times)	3.6% (19/20 times)	3.5% (19/20 times)	3.3% (19/20 times)
Respondent Gender	Women only								
Respondent Age	18 years old and older	18 years old and older	Generation X - born between 1965 and 1979 Generation Y - born between 1980 and 1990	18 years old and older	Generation X - born between 1965 and 1979 Generation Y - born between 1980 and 1990	Generation X - born between 1965 and 1979 Generation Y - born between 1980 and 1990	Generation X - born between 1965 and 1979	Generation X - born between 1965 and 1979	Generation X - born between 1965 and 1981
Additional Respondent Criteria	Moms with children 10 years old and younger								

Appendix B. Demographics

Respondent Profile: Moms with Children 10 and Under

MARITAL STATUS	2015 %	2014 %	2013 %	2012 %	2011 %	2010 %	2009 %	2008 %	2007 %
Married/living with someone	75%	81%	73%	73%	83%	82%	89%	89%	88%
Single	16%	10%	19%	13%	9%	11%	3%	4%	5%
Separated/divorced	8%	9%	7%	11%	7%	7%	7%	2%	7%
Widowed	1%	-	1%	3%	1%	<1%	<1%	<1%	<1%
SPOUSE'S EDUCATION									
Did not finish high school	5%	2%	4%	5%	4%	4%	3%	1%	1%
High school graduate	19%	17%	19%	28%	21%	22%	21%	9%	10%
Some college	24%	20%	24%	26%	23%	26%	27%	22%	22%
College graduate	31%	31%	30%	36%	33%	31%	28%	38%	37%
Some graduate work	5%	4%	6%	2%	3%	2%	3%	6%	4%
Completed graduate work	14%	21%	15%	11%	13%	12%	14%	21%	21%
Trade/vocational school	2%	4%	2%	3%	3%	3%	4%	3%	4%
WORK OUTSIDE THE HOME									
No	43%	38%	36%	53%	56%	55%	46%	32%	32%
Yes, Part-time	19%	17%	24%	19%	18%	18%	21%	22%	22%
Yes, Full-time	39%	45%	40%	28%	26%	26%	34%	46%	47%
ETHNICITY									
White/Caucasian	68%	69%	68%	78%	79%	76%	85%	84%	83%
Black/African American	11%	8%	12%	8%	8%	7%	4%	4%	4%
Hispanic/Latino	11%	10%	12%	6%	6%	10%	5%	4%	4%
Asian/Pacific Islander	6%	10%	5%	5%	6%	5%	5%	6%	7%
Mixed Race	3%	2%	2%	2%	-	-	-	-	-
Other	1%	1%	1%	1%	1%	2%	1%	2%	2%

Moms with Children 10 and Under

GENDER	2015 %	2014 %	2013 %	2012 %	2011 %	2010 %	2009 %	2008 %	2007 %
Female	100%	100%	100%	100%	100%	100%	100%	100%	100%
Male	NA								
AGE									
18-24	6%	3%	1%	17%	6%	9%	-	-	-
25-34	49%	53%	50%	25%	45%	46%	37%	33%	49%
35-44	36%	38%	41%	27%	47%	45%	63%	67%	51%
45-54	8%	6%	8%	21%	2%	-	-	-	-
55+	2%	-	-	11%	-	-	-	-	-
HOUSEHOLD INCOME									
Less than \$25,000	25%	19%	25%	16%	17%	18%	7%	4%	3%
\$25,000 - \$49,999	27%	31%	25%	31%	27%	31%	25%	10%	14%
\$50,000 - \$74,999	19%	14%	18%	26%	24%	23%	31%	21%	22%
\$75,000 - \$99,999	11%	12%	4%	14%	16%	15%	19%	26%	25%
\$100,000 or more	18%	24%	21%	13%	15%	13%	18%	39%	36%
OWN EDUCATION									
Did not finish high school	2%	1%	2%	1%	2%	2%	1%	<1%	1%
High school graduate	13%	11%	11%	23%	16%	19%	19%	9%	5%
Some college	30%	23%	24%	33%	30%	33%	29%	22%	20%
College graduate	28%	38%	39%	27%	33%	30%	33%	38%	44%
Some graduate work	6%	4%	6%	4%	5%	4%	3%	6%	7%
Completed graduate work	16%	20%	16%	8%	11%	9%	12%	22%	21%
Trade/vocational school	4%	2%	2%	3%	3%	3%	3%	3%	2%

Appendix C.

About Fruits & Veggies—More Matters

Recommendations for fruit and vegetable intake have increased due to research suggesting numerous potential benefits of fruit and vegetable consumption to prevent chronic diseases. The increased importance of fruit and vegetable consumption is illustrated by the inclusion of fruits and vegetables in the *Dietary Guidelines for Americans, 2010* as one of the “food groups to encourage” and in updated recommendations for fruit and vegetable intake that ‘half your plate’ should consist of fruits and vegetables in the new ChooseMyPlate graphic.^{116,117} This change represented an increase for most people from the previous recommendation of 5-9 servings a day.

The 5 A Day for Better Health Program (“5 A Day”) was a state-wide social marketing program begun by the California Department of Health Services in 1988 to promote increased fruit and vegetable consumption. The national 5 A Day program began in 1991 as a public-private partnership between the National Cancer Institute (NCI) and Produce for Better Health Foundation (PBH). As lead health authority, NCI determined health statements and nutrient criteria for products which could carry the brand logo, and PBH coordinated private-sector activities. In 2005, NCI transferred lead health authority to the Centers for Disease Control and Prevention (CDC).

Awareness of recommendations for fruit and vegetable consumption increased over time. In 1991, 8% of individuals reported being aware that fruit and vegetable intake should be at least 5 servings a day.¹¹⁸ In 2004, that percentage had increased to 40%.¹¹⁹ However, this heightened awareness had not translated into behavior change. Between 1994 and 2005, the proportion of adults eating 5 or more servings of fruits and vegetables per day remained virtually unchanged (24.6% vs. 25.0%, respectively) with an estimated decrease of 0.22 servings per day among adults.¹²⁰

In light of new dietary recommendations, PBH, CDC, and other partners recognized the need to establish a new identity for 5 A Day with the ability to sustain itself into the future, generate a brand that would provide an emotional or inspirational connection with consumers, and transfer 5 A Day equity—

increased awareness of fruit and vegetable recommendations and the network for promoting consumption—to a new program identity, which is now Fruits & Veggies—More Matters’.

The Fruits & Veggies—More Matters’ brand was developed based on comprehensive formative research with consumers. While specifically developed with moms as the primary target audience, the Fruits & Veggies—More Matters’ message tested well with men, women and people of different ages, incomes, and ethnicities. Moms preferred a nurturing tone rather than a preaching, frightening, or bullying one. The most effective approach in motivating mothers was to be her ally, sending a message that promotes their responsibility as family caretaker. Fruits & Veggies—More Matters’ brand appeals to moms’ sense of responsibility to take care of her family in a strong, simple, and positive manner. Mothers feel they can help their families eat more fruits and vegetables when they know that various forms (frozen, canned, dried, 100% juice, fresh) all help meet daily fruit and vegetable requirements.¹²¹ For time-starved mothers, providing simple serving suggestions, tips, and recipes was also identified as important.

Ultimately the Fruits & Veggies—More Matters slogan and graphic are seen as positive reminders to eat more fruits and vegetables by the broader consumer audience. It reminds them of the known health benefits of consuming fruits and vegetables and encourages them to eat more.

Effectively replacing 5 A Day, Fruits & Veggies—More Matters was launched in March 2007 with the support of many stakeholders, including growers, supermarket retailers, state departments of health, CDC, and others.



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