



State of the Plate 2005

Study on America's Consumption of Fruits and Vegetables

About Produce for Better Health Foundation

PBH is a nonprofit organization whose mission is to lead the way to achieving increased daily consumption of fruits and vegetables by leveraging private industry resources, leveraging public sector resources, influencing policy makers, motivating key consumer influencers, and promoting fruits and vegetables directly to consumers. The foundation is a member of the National 5 A Day Partnership, consisting of government agencies, nonprofit organizations, and industry working in collaboration to increase consumption of fruits and vegetables for improved public health.

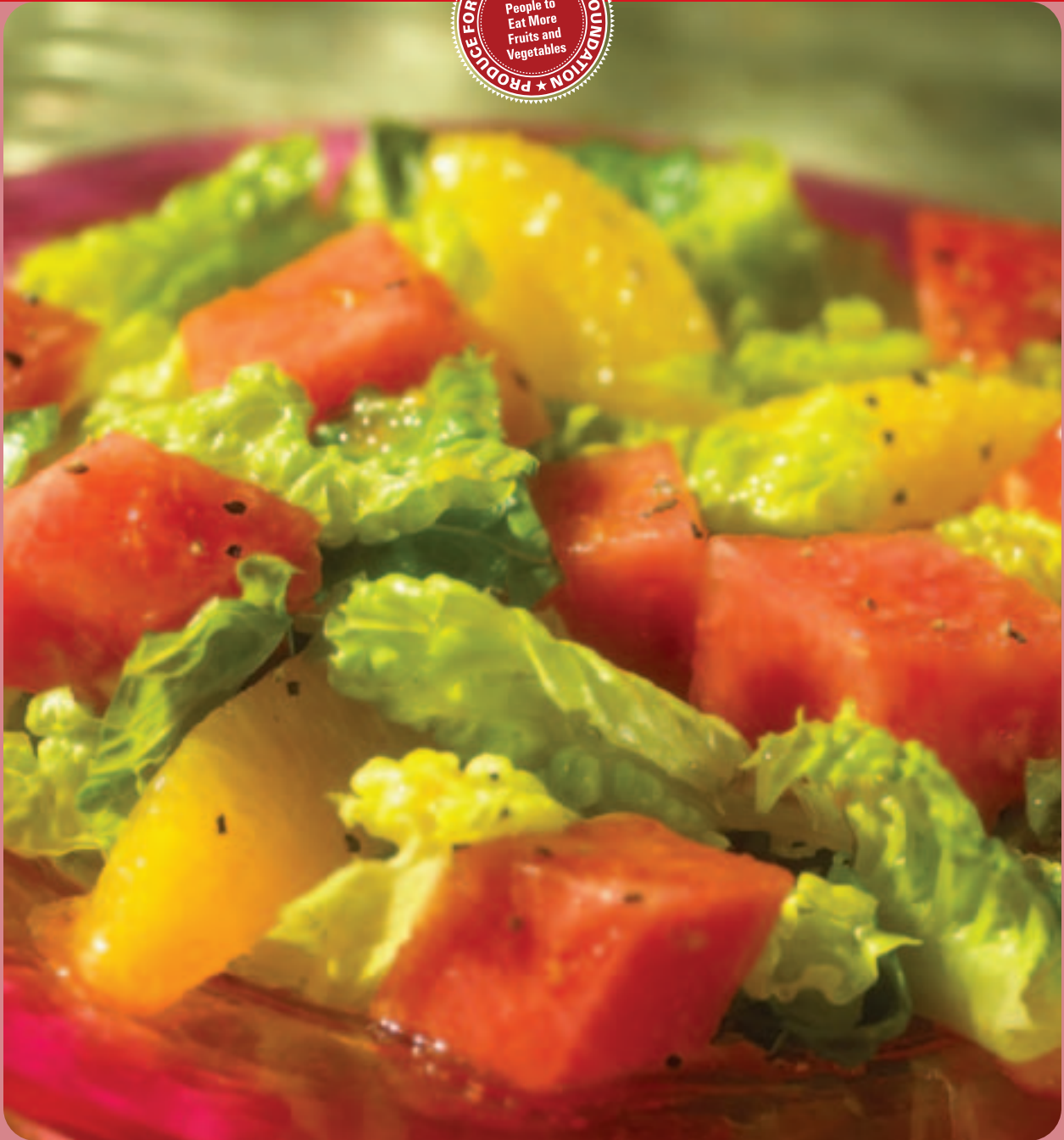


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{ Lead THE WAY TO healthy eating }



Executive Summary

In early 2005, Produce for Better Health Foundation (PBH) commissioned updates of previous consumer surveys by two of the country's most respected research firms: The NPD Foodworld® Research (NPD) and ACNielsen.¹ These updates were conducted to track fruit and vegetable consumption patterns and to learn about who eats fruits and vegetables, who doesn't and reasons why or why not.² Another research goal was to gain a better understanding of purchasing behavior in relation to motivations and barriers to eating fruits and vegetables. Consumers also offered valuable insights regarding the types of messages that would motivate them to eat more fruits and vegetables, and the data suggests how to position fruits and vegetables more effectively.

This current research updates many key findings from the benchmark *State of the Plate* report, which was published by PBH in 2003 and featured data from NPD through February 2002. New to the current research is an additional focus on body weight and the inclusion of findings from the ACNielsen survey³ to present a more comprehensive picture of America's fruit and vegetable eating habits that are presented in this updated *State of the Plate 2005* research report.

The Current Environment

The appeal of fruits and vegetables in the diet is undeniable. They add flavor, color and interest to meals, they're delicious and, most importantly, they are the best source of a host of nutrients and phytochemicals vital to health.



Federal Fruit and Vegetable Recommendations

- Consume a sufficient amount of fruits and vegetables while staying within energy needs. Two cups of fruit and 2 1/2 cups of vegetables per day are recommended for a reference 2,000-calorie intake, with higher or lower amounts depending on the calorie level.



- Choose a variety of fruits and vegetables each day. In particular, select from all five vegetable subgroups (dark green, orange, legumes, starchy vegetables, and other vegetables) several times a week.

Source: U.S. Department of Health and Human Services and U.S. Department of Agriculture. *Dietary Guidelines for Americans, 2005. 6th Edition*, Washington, DC: U.S. Government Printing Office, January 2005.

1 See Appendix A: Methodology, pg. 26.

2 This *State of the Plate* research was conducted prior to the release of the *Dietary Guidelines for Americans, 2005*. Thus, questions about consumption are based on servings instead of cups, and refer to a *minimum* recommended amount of 5 servings per day. The 2005 guidelines recommend amounts in cups versus servings, and the recommended amounts are higher than previous recommendations.

3 See Appendix B: ACNielsen Survey Questions, pg. 27.

Yet while most individuals, including children, are aware that fruits and vegetables are good for them, not everyone is eating them. In fact, **most Americans need to triple their current intake in order to meet federal recommendations for fruits and vegetables, which were increased in January 2005 from 5-9 servings⁴ per day to 5-13 servings per day.**

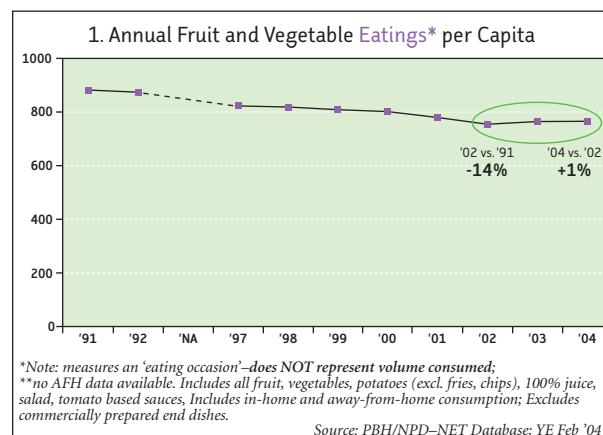
These revised *Dietary Guidelines for Americans*, 2005, recommend a prominent emphasis on the inclusion of a variety of colorful fruits and vegetables in the diet. Individuals are encouraged to consume 2 1/2-6 1/2 cups, or 5-13 servings, per day depending on their calorie level, and the importance of including different fruit and vegetable color groups to provide variety is highlighted.

Key Findings

The good news is after a decade of steadily declining fruit and vegetable intake, representing a 14% decrease between 1991 and 2002, **the consumption numbers for the first time appear to be taking a positive turn.** As shown in Chart 1, an overall 1% increase in annual eatings per capita⁵ can be seen between 2002 and 2004, suggesting that intake patterns have stabilized and possibly are beginning to reverse.



Per capita fruit servings increased 4% during this time, while vegetable servings dropped 2%. An increase in fresh fruit consumption accounted for the increase in overall per capita fruit servings. Fruit is eaten throughout the day, with gains at all meal occasions except dinner,

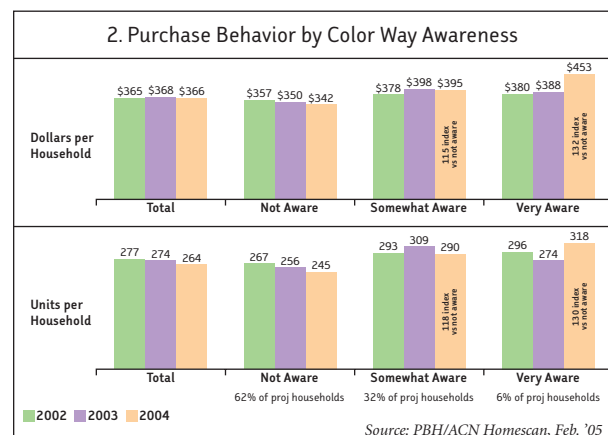


when compared to 2002. Although vegetables make up 60% of total fruit and vegetable servings, per capita losses have continued since 1991, driven by decreased in-home servings versus away from home servings. The continuing decline in side dishes served at dinner mirrors this decrease, and is the primary reason for the continuing decline in vegetable “eatings.”⁶

The bad news is that the average person still consumes only 1.8 cups of fruits and vegetables, or 3.6 half-cup servings, in a typical day. Most moderately active adults and active teens need 5 cups of fruits and vegetables every day. **Only 20% of individuals are eating 5 or more half-cup servings per day**—an amount recommended for moderately active 2-3 year olds compared to the 9-10 half-cup servings recommended for adults. Considering the 2005 dietary guidelines, very few individuals are consuming recommended amounts of fruits and vegetables for their age, gender and activity level. However, 57% of consumers surveyed by ACNielsen reported knowing that at least 5-6 servings is the recommended number, up from 40% a year prior.

Who is Eating 5 or More Servings?

PBH research revealed that those who consume 5 or more servings per day include married seniors, males over 45, females over 65 and teen boys. Achievers tend to be households with higher income and education levels, with a professional or retired head of household. Achievers also tend to reside in larger metropolitan areas. Notably, there were 32% of respondents in New England who ate 5 or more servings, whereas in other census areas, the percentage of those eating 5 or more servings averaged only 20%. Older individuals consume more meals at home, which probably drives their higher consumption.



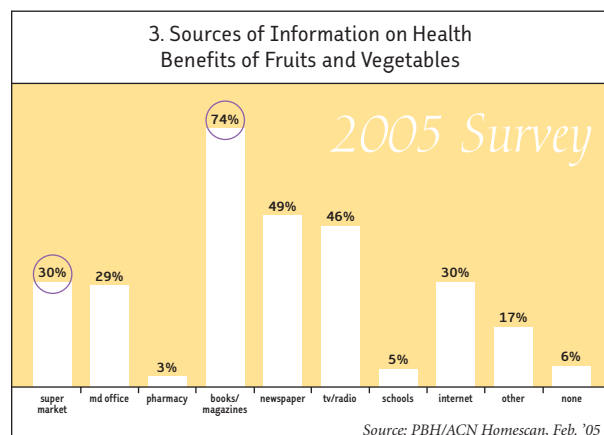
5 A Day The Color Way Reaches Consumers

Promoting awareness of PBH's 5 A Day The Color Way campaign⁷ is a key step to increasing intake and underscores the importance of fruit and vegetable promotion programs. Four out of every ten consumers are aware of the Color Way message. The efficacy of the Color Way Campaign is suggested by purchasing trends data that indicate that those who are aware of this campaign have increased fruit and vegetable spending over the past three years while those not aware have bought less fruits and vegetables each year, as shown in Chart 2.

Those aware of the Color Way message indicated that both articles and advertisements in magazines and newspapers were the primary ways they learned about the campaign. Food packages and radio increased as awareness vehicles, and the internet was also cited as a way that consumers learned of the Color Way message.

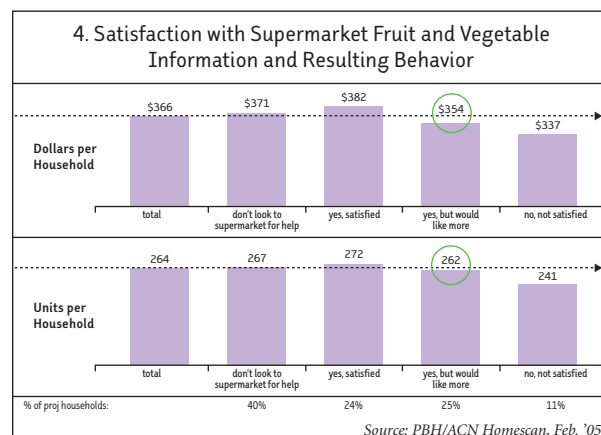
A look at other ways to reach Americans with the good message of fruits and vegetables reveals that one-third of ACNielsen-surveyed consumers said the supermarket is their primary source for information on the health benefits of fruits and vegetables. As Chart 3 illustrates, this compares to 74% who obtain information from books and magazines, 49% who use the newspaper and 46% using television and radio.

While most consumers who do use the supermarket as a source of health information are satisfied with the information provided, there remains a largely untapped group of people not considering the supermarket as a resource for such information. Supermarket retailers willing to reach their customers with valuable health information could influence consumption and sales.



And, as shown in Chart 4, those consumers who are happy with the information provided by their supermarket and need no other information from grocers spend \$28 more per household on fruits and vegetables than those that are satisfied but would like more information. This represents a substantial growth opportunity for retailers and the produce industry.

The data suggest that opportunities exist to intensify promotion efforts in supermarkets, restaurants and in all forms of consumer media to increase consumption. In light of new nutrition guidelines that emphasize fruits and vegetables, the time is now to maximize these opportunities.



⁷ See Appendix D: About 5 A Day The Color Way, pg. 29.

Barriers and Gateways to Consumption

Consumers claim the primary factors preventing them from eating more fruits and vegetables are 1) fear of spoilage, 2) price, and 3) lack of availability and convenience. They would like to see supermarkets offer better prices and coupons and give recipes and preparation suggestions. Purchasing data shows that the highest percentage of fruit and vegetable dollars are being spent in the fresh section of the store representing approximately 9.9%⁸ of all supermarket purchases, and trends over the past several years suggest this percentage may be increasing. Thus, **a good opportunity for reaching consumers exists in the produce department to provide information related to these consumption barriers.**

Although consumption data indicates little change in fruit and vegetable intake overall, there have been more noticeable changes in certain demographic groups. The greatest increases in fruit consumption have been seen in male children aged 2-12, adult males 18-54, and all females 2-44. These same groups showed decreases in vegetable consumption. However, males over 55 and females over 65 showed an opposite trend: a decrease in

fruit consumption with a similar increase in vegetable consumption. Teen girls aged 13-17 showed the most increase in vegetable consumption, representing 6% since 2002.

Working and single parents and traditional families showed an increase in per capita fruit servings, with little change in vegetable servings, explaining a reversal of a downward trend in the percentage eating 5 or more servings a day. Singles and Dual Income No Kids (DINK) families showed a greater decrease in the percentage eating 5 or more servings per day, which was accounted for by decreases in servings of both fruits and vegetables.

Although most consumers still eat fruits and vegetables for the taste and to stay healthy, a general feeling of wellness is quickly becoming an important reason to eat fruits and vegetables. **Consumers indicate that messages related to health would help them eat more. However, convenience is still important,** and over half indicated that a message about how fruits and vegetables can fit busy lifestyles would help them eat more, suggesting a focus for future marketing messages.

...while most individuals, including children, are aware that fruits and vegetables are good for them, not everyone is eating them. In fact, most Americans need to **triple** their current intake in order to meet federal recommendations for fruits and vegetables, which were recently increased from 5-9 servings per day to 5-13 servings per day at the time this report was published.



8 From 57th Annual Consumer Expenditures Study, *Progressive Grocer*, September 15, 2004, pg. 24-49. Retrieved from http://www.fmi.org/facts_figures/keyfacts/grocerydept.htm on June 23, 2005.

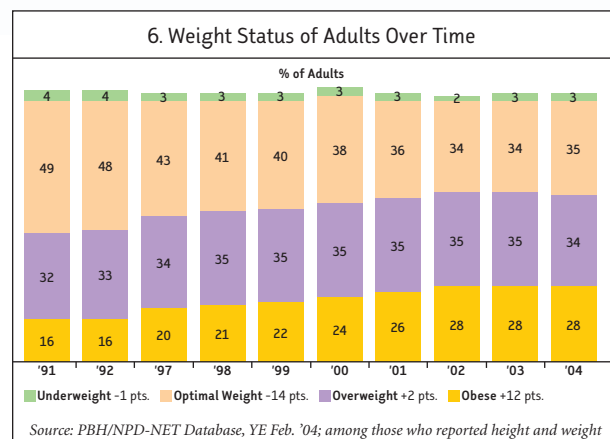
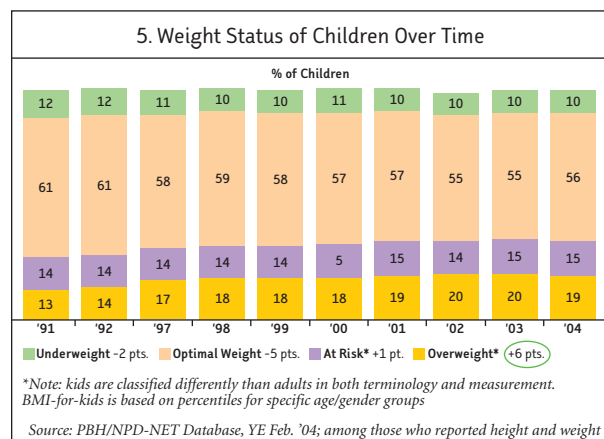
Fruits, Vegetables and Weight Management

The increase in prevalence of overweight and obesity is an important public health issue. Since 1991, 12% more of the population became obese and an additional 2% became overweight. Although the prevalence of overweight and obesity in children is lower than in adults, one-third of children have weight issues, an increase of 6% since 1991 (see Charts 5 and 6).

The percent of individuals consuming 5 or more servings per day decreases as weight rises. This is especially true for females, and the pattern also holds for children. Although a cause and effect relationship between lower fruit and vegetable consumption and obesity can not be assumed, the data does suggest that food patterns of obese individuals could benefit from modifications to include more fruits and vegetables.

The Bottom Line

Consumers are not eating enough fruits and vegetables, and consumption data for fruits and vegetables indicate that there is still considerable opportunity to increase intake and sales. The data suggest that opportunities exist to intensify promotion efforts in supermarkets, restaurants and in all forms of consumer media to increase consumption. In light of new nutrition guidelines and recommendations that emphasize fruits and vegetables, the time is *now* to maximize these opportunities.



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{Lead the way to healthy eating}



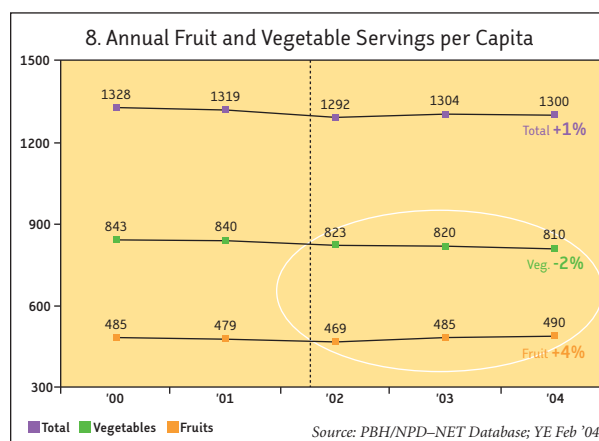
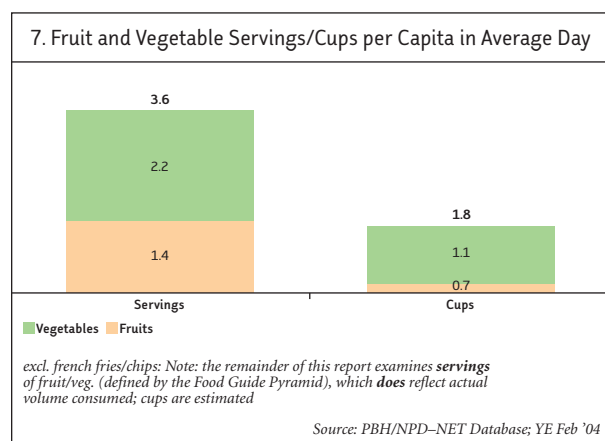
Fruit and Vegetable Consumption Trends

Consumers need to increase intakes of fruits and vegetables and there is substantial potential to increase consumption for all who have a distinct interest in promoting them—supermarkets, restaurants, schools, educators and health professionals.

Currently, the average person consumes less than 2 cups of fruit or vegetables in a typical day, or the equivalent of 3.6 servings. Of this amount, 60%, or 1.1 cups, is accounted for by vegetable intake, as Chart 7 illustrates. However, this share for vegetables seems to be changing. The stabilizing of fruit and vegetable eatings from 2002 to 2004 was accounted for by a 4% increase in fruit

servings from 469 to 490, and a 2% decrease in vegetable servings from 823 to 810.

A notable observation is that the frequency of fruit and vegetable consumption has remained stable over the past two years, after a decade of steady decline. Compared to 1991, reports of fruit and vegetable eatings were 14% lower in 2002. In 2004, reports were up 1% from those in 2002, suggesting a stabilizing and possibly a reversal of the downward movement, as shown in Chart 8.



...most people actually need much more than 5 servings of fruits and vegetables a day. Based on the revised dietary guidelines, most moderately active adults and teens need 9-13 servings a day, equivalent to about 4½-6½ cups, depending on activity level and gender.

In spite of the reversal of the trend in eatings, NPD data indicate that only about 20% of consumers are eating 5 or more servings of fruits and vegetables per day (see Charts 9 and 10). In fact, most people actually need much more than 5 servings of fruits and vegetables a day. Based on the revised dietary guidelines, most moderately active adults and teens need 9-13 servings a day, equivalent to about 4¹/₂-6¹/₂ cups, depending on activity level and gender. The NPD research shows that less than 2% of those surveyed are consuming 9 or more servings. ACNielsen data shows a remarkably similar figure: 18% of consumers report meeting at least 5 servings per day, and only 3% report that they eat 9 or more servings per day. These percentages have been fairly stable since 2000. These data indicate there is still considerable work to be done, especially when considered in light of the *Dietary Guidelines for Americans*, 2005.

Message Awareness and Consumption

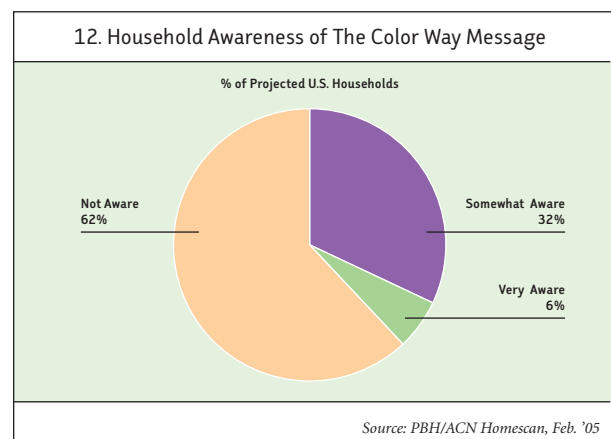
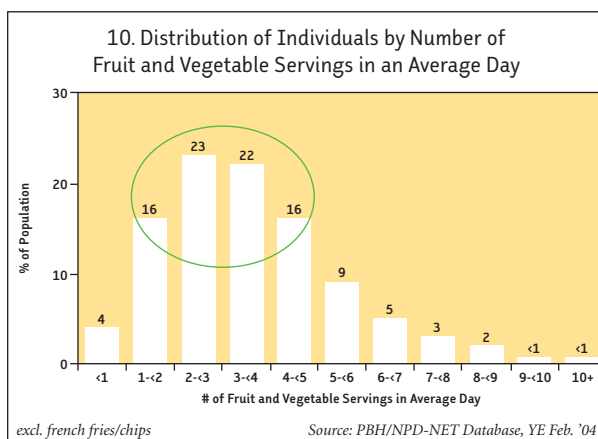
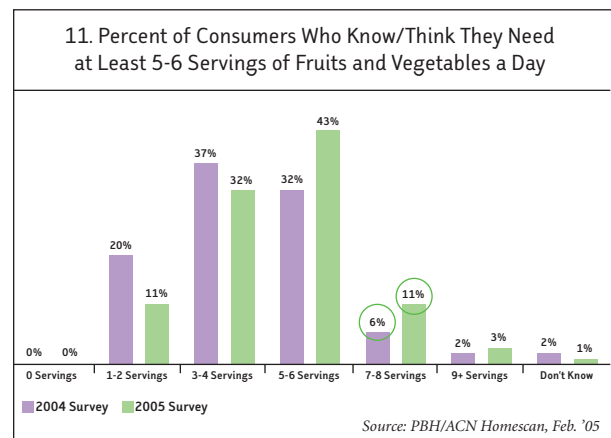
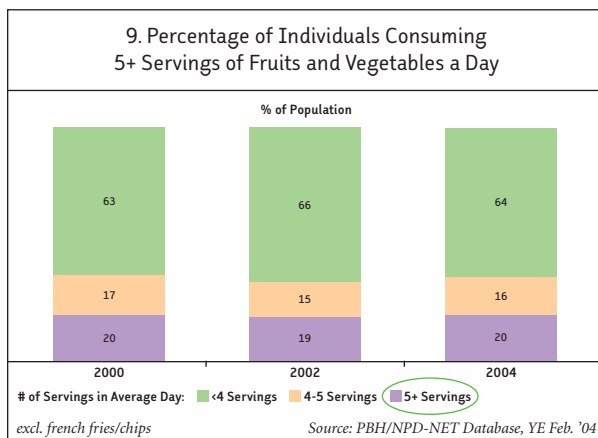
According to ACNielsen data, individual perception of the need to eat at least 5 servings a day has increased from 32% in 2003 to 43% in 2004, although 6 in 10 consumers say they are not familiar specifically with the

5 A Day The Color Way campaign message (see Charts 11-13). As Chart 11 shows, 11% of consumers say they need 7-8 servings per day, an increase from 6% in the 2004 survey. Consistent with these changes, the percentage of those who think 1-2 servings per day is adequate decreased from 20% to 11%. This data suggests that although consumers are not specifically familiar with the Color Way message, they perceive or have some knowledge of the need to increase consumption of fruits and vegetables. It also appears that the number '5' from the '5 A Day' message continues to resonate. With the release of the *Dietary Guidelines for Americans*, 2005, and its significantly elevated fruit and vegetable recommendations, consumers' perceptions will need to be shaped.

Best Methods for Reaching Consumers

Consumers obtain information on the health benefits of fruits and vegetables from various sources, as shown in Chart 14. There were 74% of consumers who reported obtaining this information from books and magazines. Other frequently reported sources were newspapers, reported by 49% and TV/radio, reported by 46%.

Only one-third of consumers receive fruit and vegetable health information from the supermarket. Considering



6,400 households visit a supermarket in an average week⁹, the opportunity for expanding message outreach in this outlet is great.

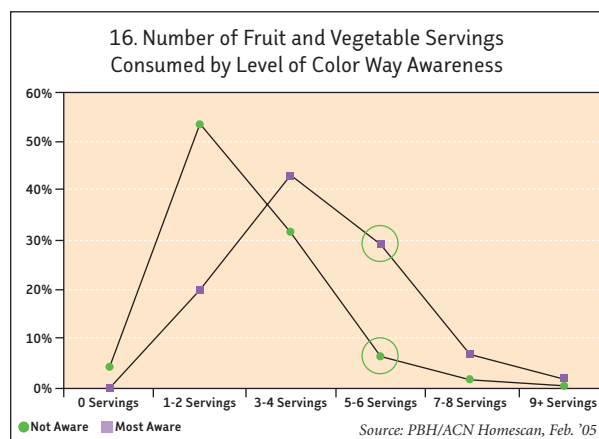
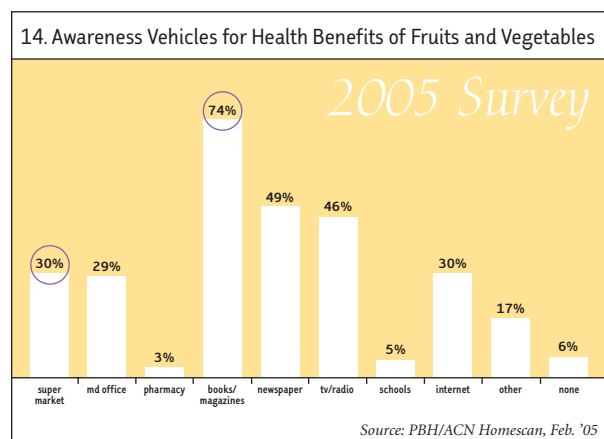
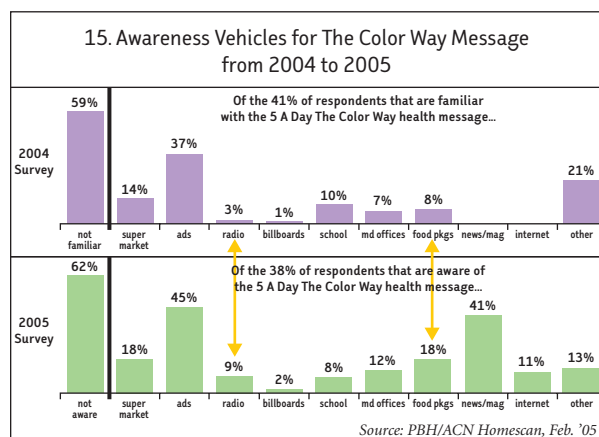
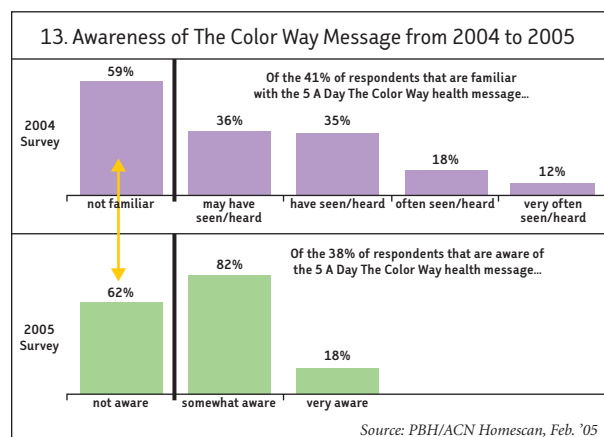
Consumers indicate their awareness of the 5 A Day The Color Way message includes advertisements and articles in newspapers and magazines, reported as the primary source of education by 45% and 41% respectively of those aware of the Color Way message (see Chart 15). A total of 18% of respondents reported supermarkets as the source of their learning of the Color Way message. Others reported that they became more aware of the Color Way message through the radio, Internet and from food packages.

Message Awareness = Increased Consumption

Data from ACNielsen suggests that consumers' increased awareness of the need to eat fruits and vegetables translates into an increase in overall consumption of fruits and vegetables. Although the increase in those who report eating 5-6 servings per day does not match the increase in those who know they need to eat that amount, 15% of consumers in 2004 say they are eating 5-6 servings, compared to 10% the previous year.

Additionally, those who were more aware of the Color Way message report consuming more fruits and vegetables. As Chart 16 illustrates, over 30% of those who were most aware of the Color Way message reported that they consume 5-6 or more servings per day, compared to less than 10% of those who said they were not aware. As addressed later on page 19, purchasing behavior supports those claiming to eat more based on awareness.

...consumers' increased awareness of the need to eat fruits and vegetables translates to an increase in overall consumption of fruits and vegetables.



⁹ From 57th Annual Consumer Expenditures Study, *Progressive Grocer*, September 15, 2004, pg. 24-49, derived by PBH based on sales transactions and frequency of shopping per household; retrieved from http://www.fmi.org/facts_figures/superfact.htm on June 23, 2005.

Who Is and Isn't Reaching Fruit and Vegetable Goals

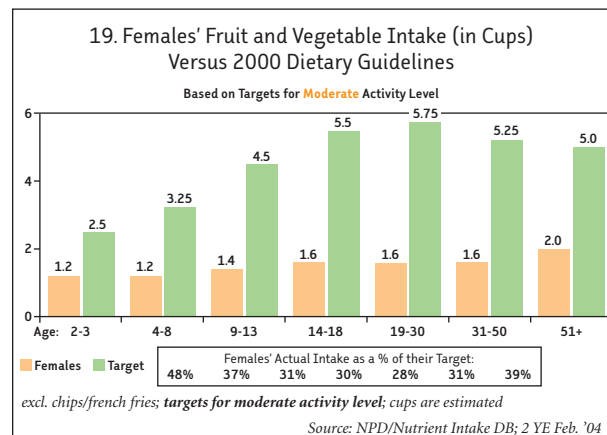
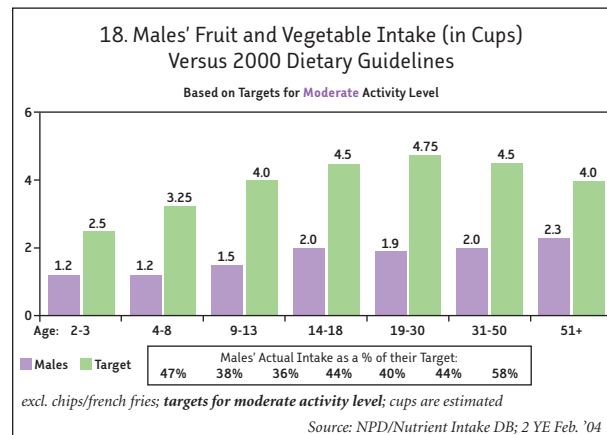
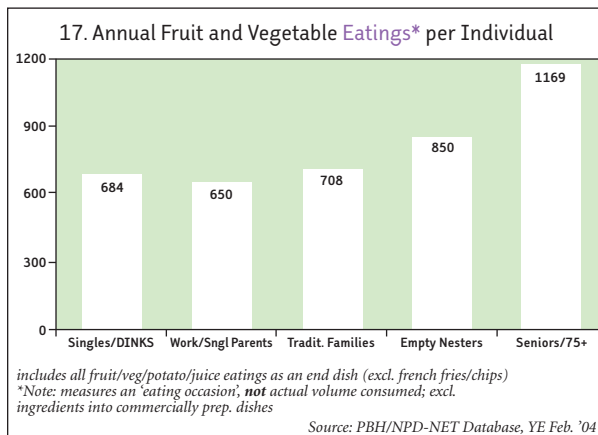
NPD data indicates that those who are more likely to consume 5 or more servings of fruits and vegetables per day are married seniors, males over 45, females over 65 and teen boys. The head of household tends to be a professional or retired professional; homemakers tend to be college graduates; and those eating recommended amounts tend to have a higher household income of over \$70,000 per year.

The 64% of consumers who are eating less than 4 servings per day are families with children, especially those with younger kids or single parent households, kids aged 2-12, teenage girls and females younger than 45 (see Chart 17). Families with younger children all show average likelihood of consuming less than 4 servings per day; fruit and vegetable consumption in this group is not influenced by income, household size, education of female head or occupation of household head.

Additionally, there are 16% of individuals who *almost* consume 5 servings a day, and this group includes affluent singles and empty nesters, males over 35 years and females over 55 years. They also show the same average likelihood of consuming 4-5 servings per day. As

discussed previously, most adults need 9-13 servings or 2½ -6½ cups of fruits and vegetables a day, based on the *Dietary Guidelines for Americans*, 2005.

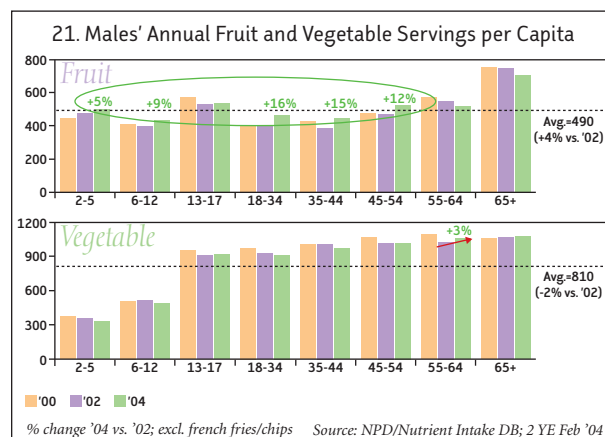
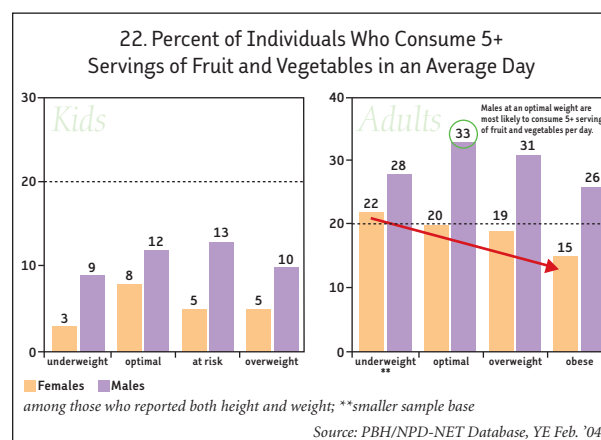
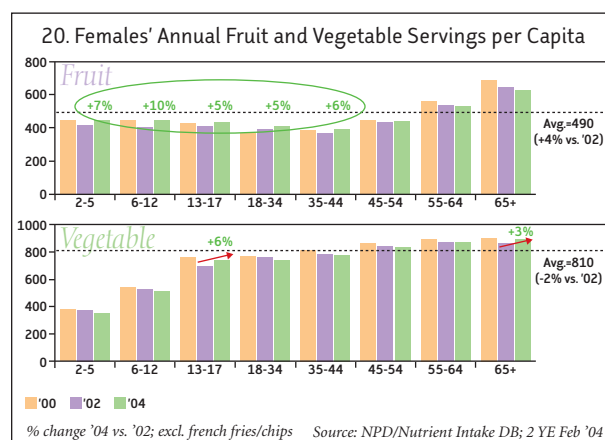
Improvement in intake is needed for all ages. Although men consume larger portions than women, the *frequency* of fruit and vegetable consumption is similar for both genders. This means that women eat fruits and vegetables as often as men do over the course of a year, but men eat larger amounts. Portion size drives males to be heavier consumers than females, and kids less than 12 to be lighter consumers. However, the gap between minimum recommendations and actual intake is similar for adult men and women. As shown in Chart 18, most males are consuming around 40% of the recommended amount of fruits and vegetables based on the new dietary guidelines for moderately active males. Chart 19 depicts a similar gap among females; about 35-40% are meeting nutrition targets for fruits and vegetables. Males and females over 65 tend to be heavy fruit users (3 or more servings per day), and adult males of all ages tend to be heavy vegetable users (3 or more servings per day). There have been increases in fruit consumption among all males ages 2 through 54 years of age, but males over 55 are consuming less fruit (see Chart 20).



The 4% increase in overall per capita fruit servings is explained by an increase in consumption by males ages 2-54 years and females between 2-64 years of age. However, males over 55 and females over 65 are consuming less fruit and more vegetables as shown in Chart 21. The 2% overall decrease in per capita vegetable servings is explained by a decrease in vegetable servings by males 35-44 and children 2-12. With the exception of declining consumption in males over 55 and females over 65, intake of vegetables was essentially stable.

Fruit and vegetable consumption is fairly similar for most body mass index (BMI) groups. Adults who are obese consume 8% fewer fruit and vegetable servings than those who are under, normal or overweight. Additionally, among adults, the percentage of individuals consuming 5 or more servings of fruits and vegetables per day drops as weight increases (see Chart 22). Lower consumption levels among adults who are obese are driven by fewer fruit servings, more so than vegetables. Interestingly, those who are at optimal weight eat fruit salad and vegetable juice at above average rates, whereas those who are obese consume the same food items at a below average rate, along with fruit juice and fresh fruit.

Improvement in intake is needed for all ages. Although men consume larger portions than women, the frequency of fruit and vegetable consumption is similar for both genders. This means that women eat fruits and vegetables as often as men do over the course of a year, but men eat larger amounts.



Meal Patterns

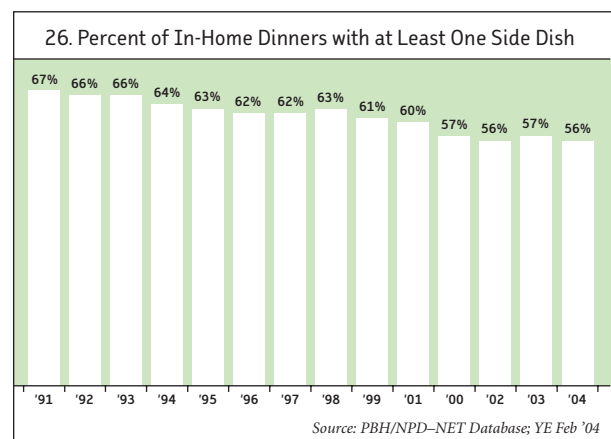
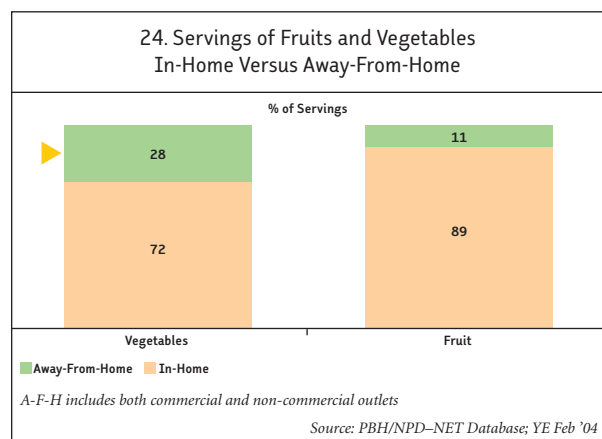
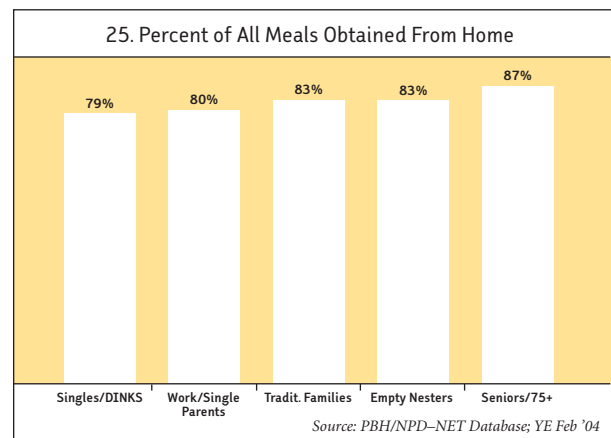
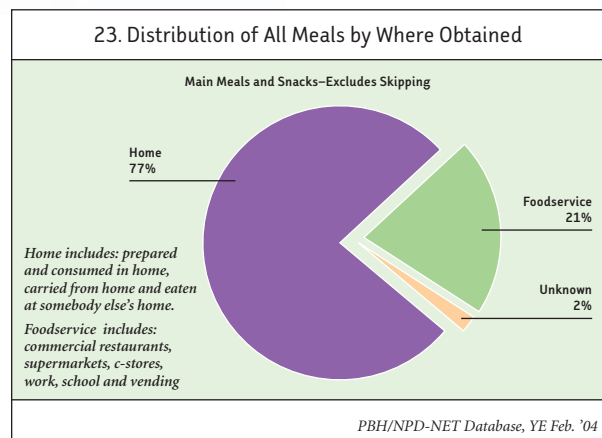
There are several possible explanations for the various consumption trends in fruit and vegetable intake indicated by the data. One relates to where meals and snacks are obtained. The data for 2004 shows that approximately 77% of meals and snacks are eaten at home (see Chart 23). As shown in Chart 24, in-home consumption of both fruits and vegetables dominates: 72% of vegetables and 89% of fruits are consumed in-home. Further analysis shows that singles, households with two working adults and no kids, working and single parent families, and traditional families with

young children tend to consume more meals outside of the home. As Chart 25 shows, they also have fewer eatings of fruits and vegetables than empty nesters and seniors over 75, who consume a higher percentage of meals in-home.

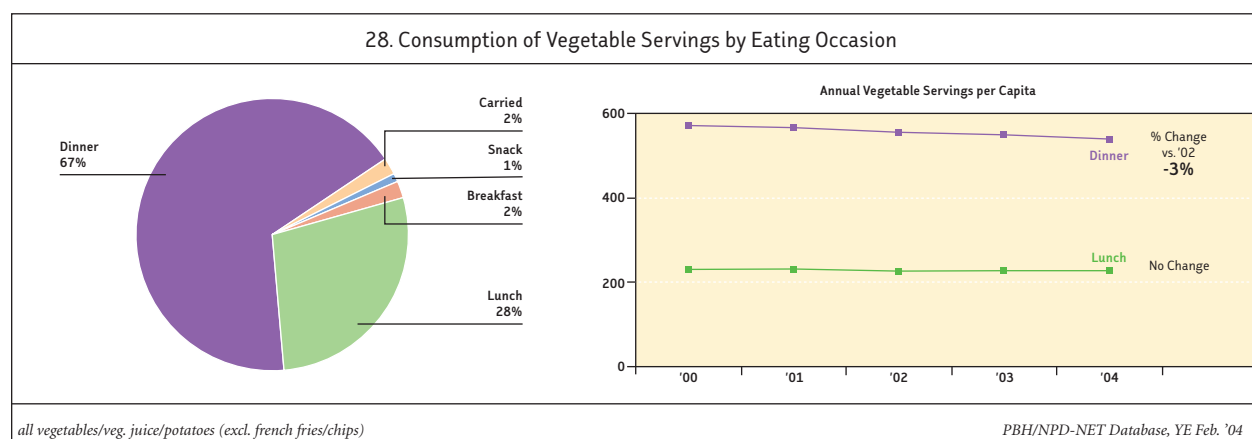
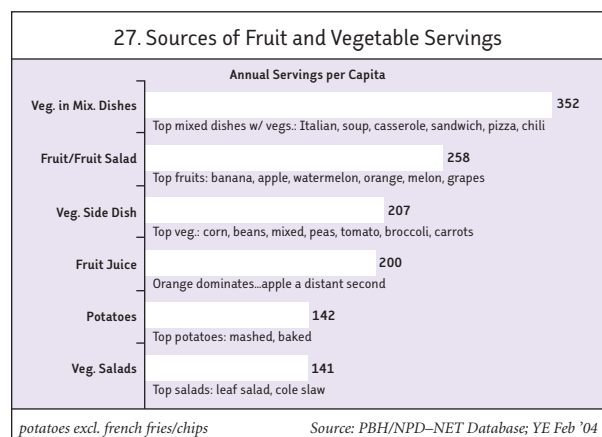


Changes in the dinner table may also explain some of the differences in fruit and vegetable intake. The inclusion of side dishes, such as salads, steamed vegetables, potatoes or fruit cup, has slowly declined from 67% in 1991 to 56% in 2002, illustrated in Chart 26. Data for 2004 is unchanged from 2002. Thus, the trends in the percent of homes with at least one side dish are similar to those for fruit and vegetable eatings. This is because the category “vegetables served as a side dish” is the third source for fruit and vegetables servings, leading to a decrease in overall vegetable intake (see Chart 27). The largest source for fruit and vegetable servings is vegetables in mixed dishes such as Italian recipes (tomato sauce in pasta dishes), soups, casseroles, sandwiches, pizza and chili; the next largest source of servings is fruit/fruit salad. However, without the inclusion of a vegetable side dish, the number of vegetable eatings declines.

Two-thirds of all vegetable servings are eaten at dinner. Consistent with the decrease in side dishes at the in-home dinner table, this meal has also been most responsible for the decline in vegetable intake. (See Chart 28.) Fruit is eaten throughout the day, as shown in Chart 29 and has gained popularity at breakfast, lunch



ACNielsen found that consumers have been most willing to incorporate more fruits and vegetables into snacking occasions; however, in the last year, more are saying they would include more fruits and vegetables in the three main meals as well. Consumers who say they are willing to add more fruits and vegetables to their breakfast currently spend more dollars on fruits and vegetables, suggesting that they may already include fruits and vegetables in other meal and snack occasions.



and snack occasions. ACNielsen found that consumers have been most willing to increase fruits and vegetables at snacking occasions; however, in the last year, consumers are saying they would include more fruits and vegetables in the three main meals as well (see Chart 30). Consumers who say they are willing to add more fruits and vegetables to their breakfast currently spend more dollars on fruits and vegetables, suggesting that they may already include fruits and vegetables in other meal and snack occasions. This is illustrated in Chart 31.

Motivations for Eating Fruits and Vegetables

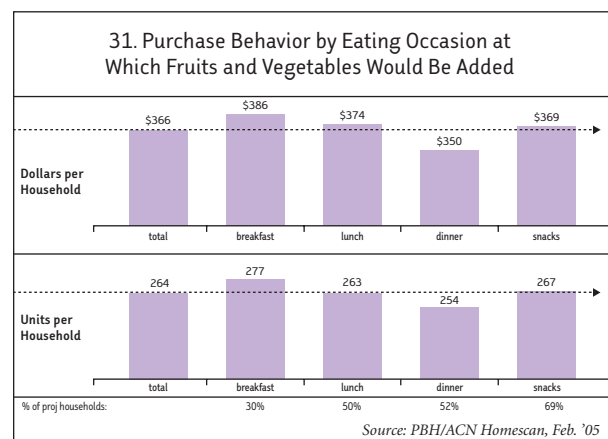
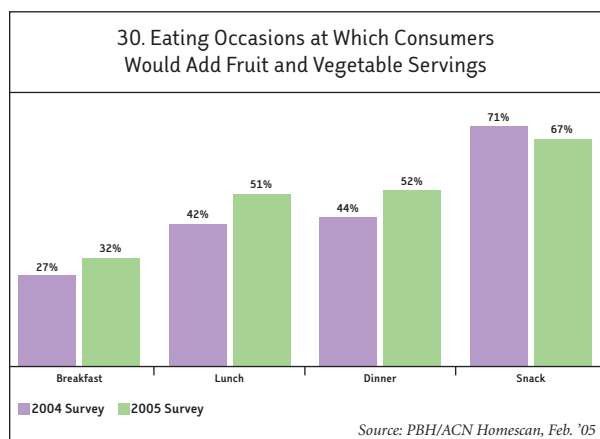
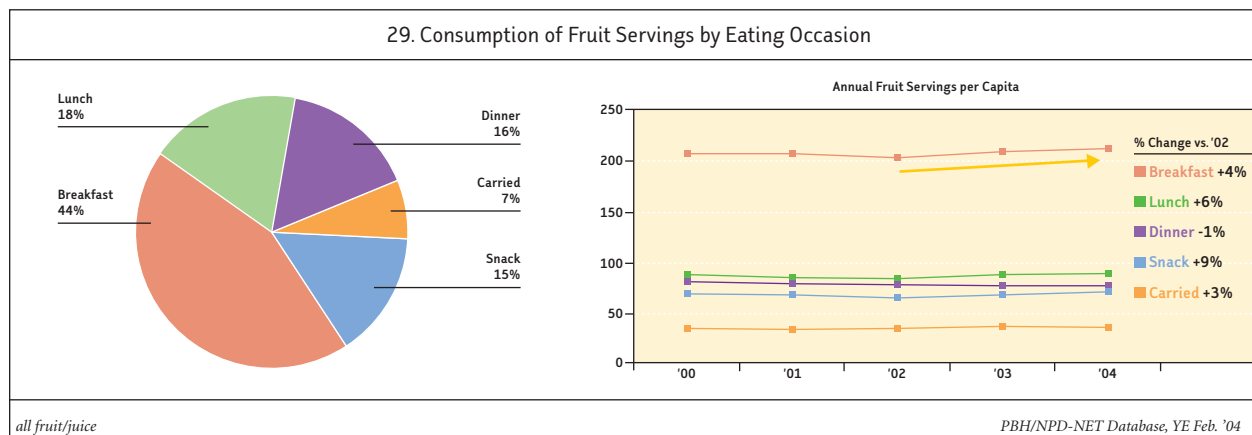
Based on the ACNielsen data, primary reasons consumers eat fruits and vegetables are to stay healthy and for the taste. There were more individuals in 2005 compared to 2004 who indicated that feeling well (indicated by 34%, up from 26%) and staying healthy (indicated by 87%, up from 84%) are reasons they eat fruits and vegetables (see Chart 32). This was born out by dollars spent and units purchased: those who ate fruits and vegetables to feel well and stay healthy bought more. Chart 33 shows that when compared to the average of \$366 spent per year on fruits and vegetables, those who purchased for “feeling well” spent \$380, “staying healthy” spent \$375,

and “preventing disease” spent \$374. Taste is still an important reason that people eat fruits and vegetables, although this response was indicated by 74% in 2005 compared to 83% in 2004, with only \$360 spent per year by those who chose this response. When all health-related responses are taken together, it appears that health is becoming a more salient consideration for including fruits and vegetables in the diet.

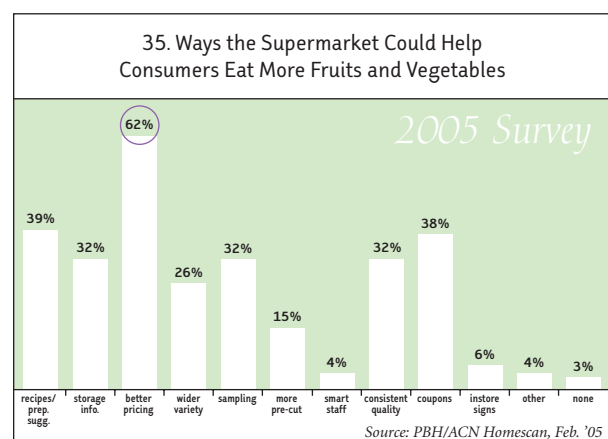
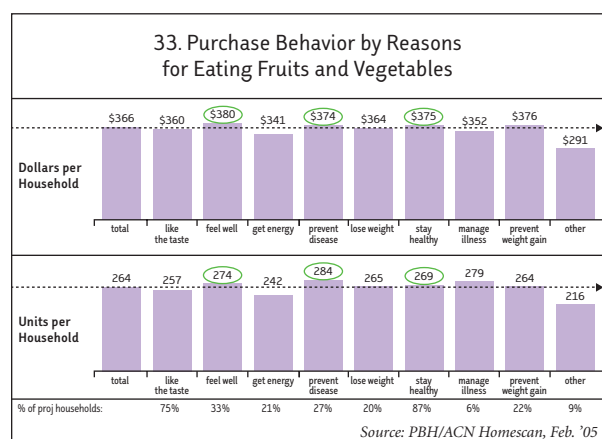
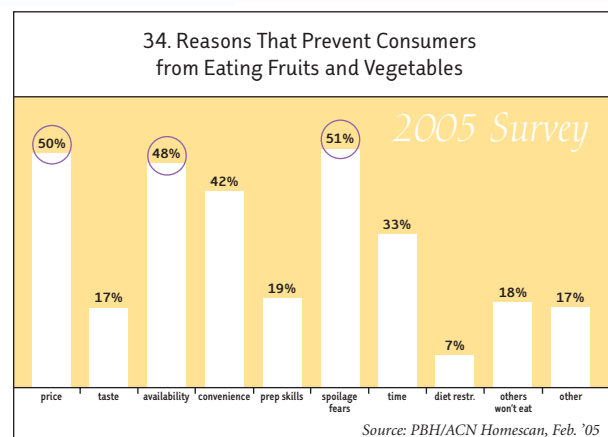
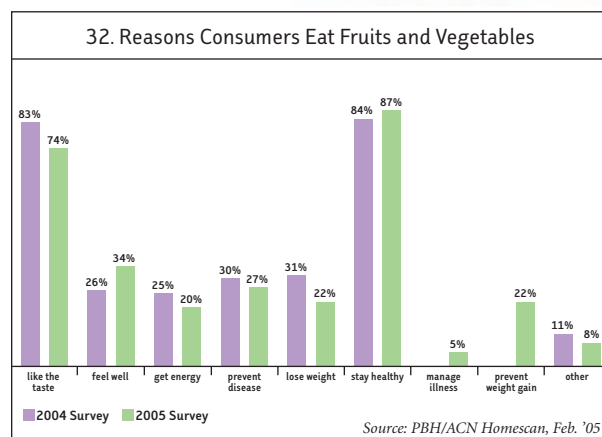
The potential opportunities for supermarkets to increase fruit and vegetable sales are suggested by consumer responses regarding perceived barriers. When asked about top three barriers to fruit and vegetable consumption, consumers most commonly reported fear of spoilage (51%), price (50%) and availability (49%). Convenience (42%) and time (33%) were also seen as big obstacles (see Chart 34).

Consumer Education Provides Opportunity

Although consumers indicate that messages related to health would help them eat more, convenience is still important and over half indicated that a message about how fruits and vegetables can fit busy lifestyles would help them eat more, suggesting a focus for future marketing messages.



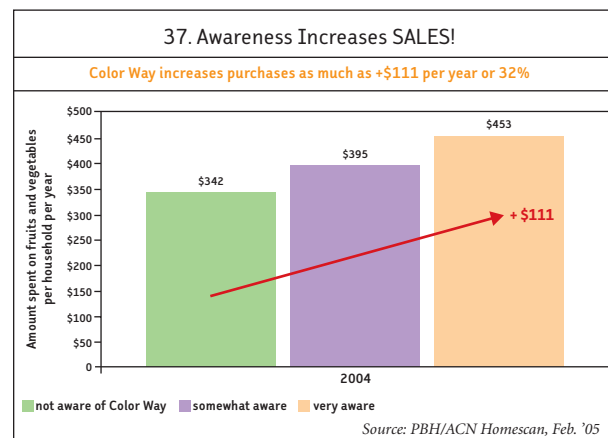
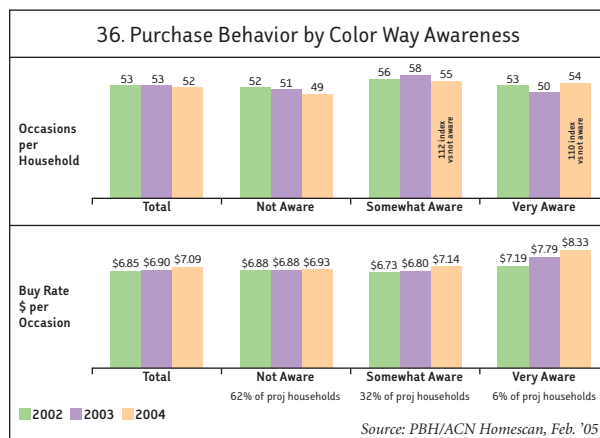
Sixty-one percent of consumers look to the supermarket for help in eating fruits and vegetables; 4 in 10 of that group of consumers indicated they would like more information from the supermarket. The supermarket is an ideal venue to provide consumers with information about selecting, storing and preparing fruits and vegetables. There were 62% of consumers who felt that supermarkets could help them eat more fruits and vegetables by better pricing and coupon incentives (see Chart 35). Data suggests that the point of purchase environment may represent an opportunity to increase awareness and thereby increase sales. Sixty percent (60%) of consumers look to the supermarket for information on fruits and vegetables. Recipes, samplings and information on selection and storage were indicated as ways that the supermarket could help them eat more fruits and vegetables, in addition to purchasing incentives.





Purchasing Trends

Purchasing behavior also indicates that awareness relates to behavior. Being “very aware” or “somewhat aware” of the 5 A Day The Color Way message was associated with more dollars spent on fruits and vegetables, and a higher number of units purchased at each shopping occasion. Those who are not aware of the Color Way message spend approximately \$6.93 per occasion, with fewer purchasing occasions. And, as shown in Chart 36, those somewhat aware spend \$7.14 per occasion, and those “very aware” spend \$8.33 per occasion. Compared to consumers not aware of the Color Way message, those who were very aware spent \$111 more, and those somewhat aware spent \$53 more on fruits and vegetables (see Chart 37).



And ACNielsen found that consumer purchasing of fruits and vegetables has changed little over the past three years: all households buy at their local supermarket on average of once a week, and spend about \$7 on fruits and vegetables each time they buy (see Chart 38).

Consumption of fruits and vegetables as “fresh” dominates for both. Fruits are largely consumed as fresh whereas one-third of vegetables are consumed as frozen or canned. As shown in Chart 38, the shares for consumption of the various forms of both fruit and vegetables have remained stable over time. In Chart 39,

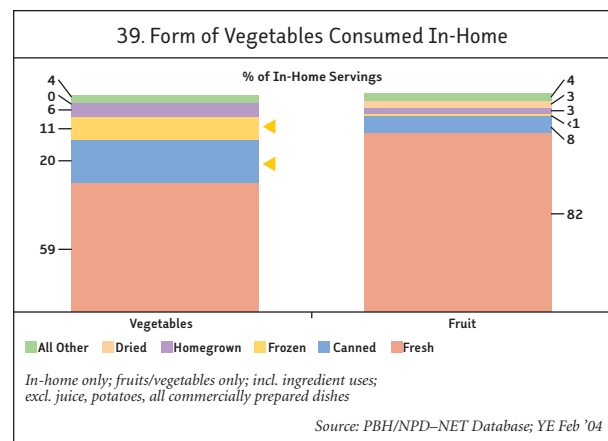
the ACNielsen data shows that a similar percentage of canned, dried and frozen fruits were consumed.

Twenty-eight percent of vegetables and 35% of fruit are purchased “on deal.”¹⁰ The mix of fruits and vegetables bought by consumers at retail has not changed—their dollars are evenly split, and vegetables comprise more of the actual units bought. There has also been little change in consumer purchasing of fruit vs. vegetables. Both were bought with the same frequency, although fruit was bought more on deal and each time vegetables were purchased, an extra unit was included (see Chart 40).

38. Consumer Purchasing of Fruits and Vegetables			
	Calendar 2002	Calendar 2003	Calendar 2004
% Household Penetration	100%	100%	100%
Annual \$ per hhld	\$333	\$335	\$337
Annual Units per hhld	259	257	250
Average # of purchase occns per year	50	50	50
Per Occasion \$ spent	\$6.63	\$6.66	\$6.78
Per Occasion units bought	5.1	5.1	5.0
Purchase Cycle (in days)	7	7	7
% of spending on deal*	30%	32%	31%

* Deal is defined by the consumer—they recognize and report some sort of special promotion (could be temporary price cut, manufacturer coupon, store sale of buy two get one free, etc...)

Source: PBH/ACN Homescan, Feb. '05



40. Consumer Purchasing of Fruits and of Vegetables							
Fruits				Vegetables			
	Calendar 2002	Calendar 2003	Calendar 2004		Calendar 2002	Calendar 2003	Calendar 2004
% Household Penetration	99%	100%	100%	% Household Penetration	100%	100%	100%
Annual \$ per hhld	\$166	\$167	\$168	Annual \$ per hhld	\$169	\$170	\$171
Annual Units per hhld	109	108	105	Annual Units per hhld	151	151	146
Average # of purchase occns per year	36	36	36	Average # of purchase occns per year	37	37	37
Per Occasion \$ spent	\$4.57	\$4.62	\$4.72	Per Occasion \$ spent	\$4.55	\$4.58	\$4.66
Per Occasion units bought	3.0	3.0	3.0	Per Occasion units bought	4.1	4.1	4.0
Purchase Cycle (in days)	9	9	9	Purchase Cycle (in days)	9	9	9
% of spending on deal*	34%	36%	35%	% of spending on deal	26%	28%	28%
Source: PBH/ACN Homescan, Feb. '05							



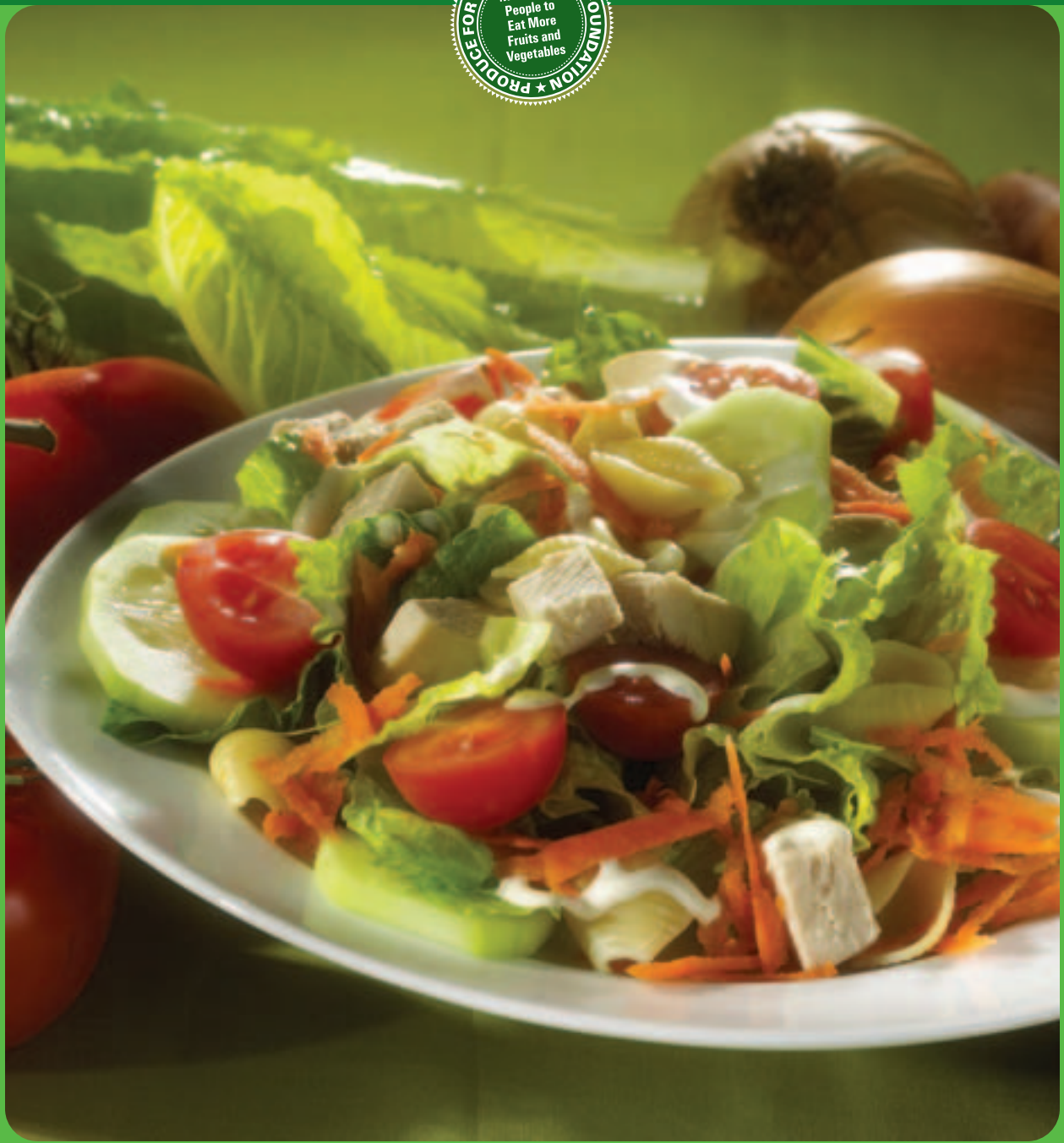
10 See Appendix A: Glossary, pg. 29.

The mix of fruits and vegetables bought by consumers at retail has not changed—their dollars are evenly split, and vegetables comprise more of the actual units bought. There has also been little change in consumer purchasing of fruit vs. vegetables. Both were bought with the same frequency, although fruit was bought more on deal and each time vegetables were purchased, an extra unit was included.



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{Lead THE way to healthy eating}



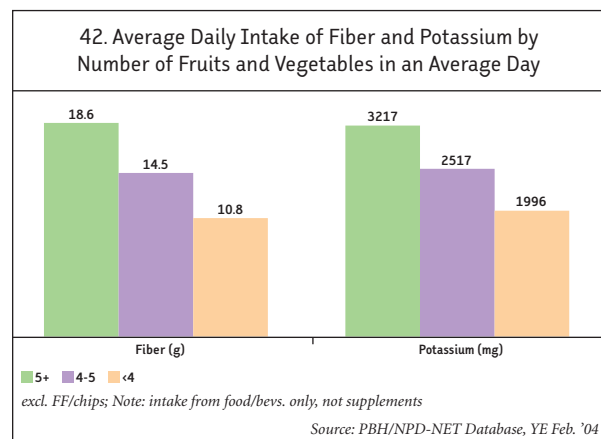
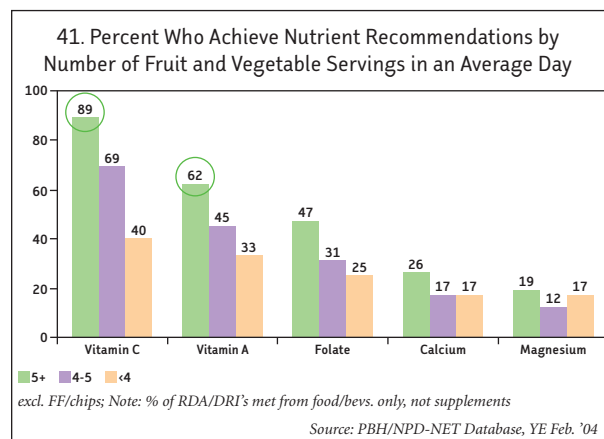
Nutrient Intake Implications of Fruit and Vegetable Consumption

Most Consumers Not Getting Enough Key Nutrients

Individuals who consume 5 or more servings of fruits and vegetables in an average day are much closer to achieving their targets for many key nutrients. Daily requirements for vitamin C are met by 90% of those who eat 5 or more daily servings of fruits and vegetables. Also, a higher percentage of those who consume 5 or more servings per day meet recommendations for vitamin A, folate, calcium and magnesium. These

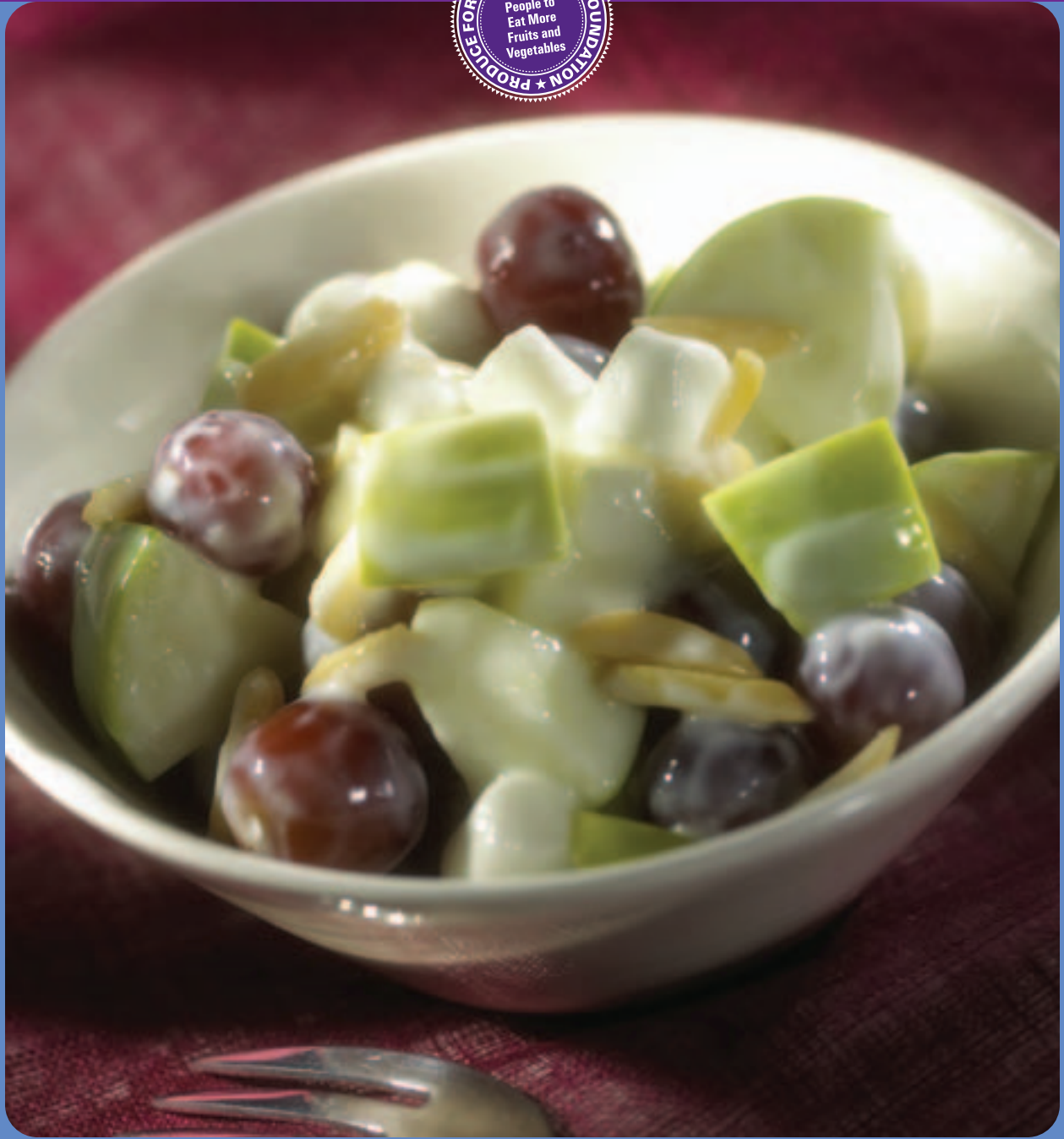
individuals also consume 60-70% more fiber and potassium in their diet vs. those who consume less than 4 servings per day. By comparison, the average person is only consuming 40% of the vitamin C, 40-60% of the daily fiber they need and 50-70% of their potassium target (see Charts 41 and 42).

When considered by weight status, obese adults are less likely to meet recommended intakes for vitamins A and C, calcium, magnesium and folate. Interestingly, this same trend is not apparent in children.



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{Lead THE WAY TO healthy eating}



Reaching Recommended Fruit and Vegetable Goals

Before the revised dietary guidelines were released, Americans were not eating enough fruits and vegetables. Now the implications are even greater.

State of the Plate 2005 research reveals considerable opportunity to increase intake and sales. This insight allows marketers to gain greater understanding about what people are buying and eating, why they do so, which demographic groups are more likely to choose fruits and vegetables, and how those individuals respond to communications and promotions. And importantly, it also suggests potential opportunities to increase consumption among those who less likely

to choose fruits and vegetables.

As our understanding of barriers that prevent Americans from eating more fruits and vegetables grows, marketers of fruits and vegetables are empowered with consumers'

perspectives and can provide targeted solutions.

The data suggests that key opportunities to intensify promotion efforts exist in supermarkets, restaurants and in all forms of consumer media. Data also suggests that capitalizing on these opportunities will lead to increased consumption and thus, begin to shift the country's eating habits toward eating more fruits and vegetables.

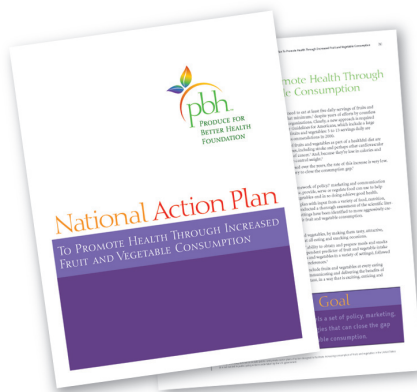
Furthermore, amidst the cacophony of health messages in the United States, consumers are beginning to dismiss trendy diets. As consumers increase their focus to choosing a healthy diet, it is likely that they will demand access to fruits and vegetables, the foundation

of basic nutrition. Capitalizing on this increased consumer demand not only provides a chance to increase consumption, but also engages the "halo" effect of health-based fruit and vegetable promotions that enhance a company's image in the minds of consumers. And as the research suggests, using fruit and vegetable marketing programs lifts fruit and vegetable sales and awareness of the promotion results in customers eating more.

Now more than ever, the time is ripe to strengthen actions to advance consumption of fruits and vegetables.

Making the healthy choice the easy and desirable choice

With that consideration, the *National Action Plan to Promote Health Through Increased Fruit and Vegetable Consumption* was developed by Produce for Better Health Foundation. The plan proposes an integrated framework of policy, marketing and communication strategies that all entities—large and small—that produce, provide serve or regulate food can use to



As our understanding of barriers that prevent Americans from eating more fruits and vegetables grows, marketers of fruits and vegetables are empowered with consumers' perspectives and can provide targeted solutions.

help Americans obtain, prepare and consume fruits and vegetables, and in so doing achieve good health.

PBH's *National Action Plan* is a blueprint for change that calls upon an array of stakeholders—government leaders, health care professionals, worksites, restaurants, schools, supermarkets, researchers and others—to take action in shaping a healthier food environment that supports consumers in meeting their fruit and vegetable dietary goals. The strategies outlined in the plan are a combination of existing practices, for which

there is substantial evidence of effectiveness, and fresh ideas from some of the nations' leaders in food and nutrition policy, marketing and communications.

Changing America's eating behavior is no easy task. Creating a paradigm shift requires an aggressive approach to close the gap between actual and recommended consumption, and is dependent on the help of all fruit and vegetable stakeholders to do their part in providing a food environment where the healthy choice of fruits and vegetables is the easy and desired choice!

Find the *National Action Plan* at www.pbhfoundation.org/actionplan and learn more about getting involved today!

Appendix A: Methodology

The NPD Group

The NPD Foodworld® Group Research analyzed consumers' consumption patterns of fruits and vegetables to compare benchmark data collected for Produce for Better Health Foundation in 2002 in order to evaluate the state of American's diets in relation to fruits and vegetables. This report is based on National Eating Trends (NET) data collected from a panel of participants for the year ending February 2004 by NPD Foodworld® Research, the Chicago-based food research division of The NPD Group. NET data has been collected continuously since 1980.

Participants report all foods and beverages consumed in-home or away-from-home by all family members for a two-week period of time. There were 2,000 households who reported, with data collected for approximately 5,000 individuals. These households were comprised of 500 single and 1,500 family households. Participant selection is balanced within the 4-way census region and on key U.S. census demographic variables including household income, household size, and age/education/employment of female head.

Two-week reporting periods of respondents were staggered throughout the year to account for seasonal variation. Approximately 40 households begin their two-week reporting period each Monday. Data measurement is an eating occasion, and actual

volume consumed is not measured. From this information, a consumption database is developed. A nutrient intake database is created by merging the eating frequencies from NPD's consumption database with U.S. Department of Agriculture nutrient composition and servings sizes via a mapping and linking program developed by The NPD Group.

ACNielsen

The ACNielsen survey was conducted in February 2005 to broaden understanding of consumers' attitudes and habits related to fruits and vegetables, to explore awareness of fruit and vegetable messages, and to review fruit and vegetable trends and purchasing data at retail. A 14-question, closed-ended survey was emailed to a random sample of U.S. households. The primary shopper of each household was asked to respond. There were 2,597 responses, representing a 64% response rate. Questions included on the survey can be found in Appendix B.

Households selected for participation are demographically and geographically representative. Using an in-home scanner, families and individuals continually provide information about their purchases from all outlets. Additionally, for participating households, socio-demographic information is regularly updated as well as information about their attitudes, opinions, lifestyles and uses of products and retailers.

Appendix B: ACNielsen Survey Questions

This survey was conducted prior to the release of the *Dietary Guidelines for Americans*, 2005. Thus, questions about consumption are based on servings instead of cups, and refer to a minimum recommended amount of 5 servings per day. The 2005 guidelines recommend amounts in cups versus servings, and the recommended amounts are higher than previous recommendations. As a result, survey participants were asked to consider the following as servings of fruits and vegetables:

- All fresh fruits and vegetables (including salads), canned, frozen, or dried fruits and vegetables, as well as 100% juice products.
- A serving size is a medium sized fruit or vegetable; $\frac{1}{2}$ cup raw, cooked, frozen or canned fruits or vegetables; 1 cup of raw leafy vegetables; $\frac{1}{4}$ cup of dried fruit; $\frac{3}{4}$ cup of 100% juice; or $\frac{1}{2}$ cup of cooked, canned or frozen beans or peas.

1. About how many servings of fruits and vegetables do you think you should eat each day to stay healthy?

- ☐ None
- ☐ One to Two
- ☐ Three to Four
- ☐ Five to Six
- ☐ Seven to Eight
- ☐ Nine or more
- ☐ Don't know

2. About how many servings of fruits and vegetables do you, yourself, eat a day?

- ☐ None
- ☐ One to Two
- ☐ Three to Four
- ☐ Five to Six
- ☐ Seven to Eight
- ☐ Nine or more
- ☐ Don't know

3. Which of the following colors of fruits and vegetables do you, yourself, typically eat in a day? Please select all that apply.

- ☐ Blue/purple
- ☐ Green
- ☐ White
- ☐ Yellow/orange
- ☐ Red
- ☐ Other
- ☐ Don't know

4. Please select the *three most important* reasons why you, yourself, eat fruits and vegetables? Please select your top three responses.

- ☐ Like the taste
- ☐ To feel well
- ☐ To get energy
- ☐ To prevent disease
- ☐ To lose weight
- ☐ To stay healthy
- ☐ To manage illness
- ☐ To prevent weight gain
- ☐ Other

5. Please select the *three most important* factors that prevent you from eating more fruits and vegetables? Please select your top three responses.

- ☐ Price
- ☐ Taste
- ☐ Availability
- ☐ Convenience
- ☐ Preparation skills
- ☐ Fear of spoilage
- ☐ Time
- ☐ Diet restrictions
- ☐ Household members will not eat
- ☐ Other

6. If you were to eat more fruits and vegetables, when would that be? Please select all that apply.

- ☐ Breakfast
- ☐ Lunch
- ☐ Dinner
- ☐ Snacks

Appendix B: ACNielsen Survey Questions, continued

7. Please select the *three* sources of information on the health benefits of fruits and vegetables you use most? Please select your top three responses.
- ☐ Supermarket
 - ☐ Doctor's office
 - ☐ Pharmacy
 - ☐ Books/Magazines
 - ☐ Newspaper articles
 - ☐ Television/Radio
 - ☐ Schools
 - ☐ The Internet
 - ☐ Other
 - ☐ None
8. Are you satisfied with the information your supermarket provides about the health benefits of fruits and vegetables?
- ☐ Yes
 - ☐ Yes, but would like even more
 - ☐ No
 - ☐ Don't look to supermarket for information
9. Please select the *three most important* ways your supermarket could help you eat more fruits and vegetables? Please select your top three responses.
- ☐ Recipes and preparation suggestions
 - ☐ Selection and storage information
 - ☐ Better pricing
 - ☐ Provide wider variety/selection
 - ☐ Store sampling/demos
 - ☐ Provide more pre-cut fruits and vegetables
 - ☐ More knowledgeable staff
 - ☐ Consistent quality
 - ☐ Coupon incentives
 - ☐ In-store signs
 - ☐ Other
 - ☐ None of the above
10. Are you, yourself, satisfied with the ways your supermarket helps you eat more fruits and vegetables?
- ☐ Yes
 - ☐ Yes, but would like even more help
 - ☐ No
 - ☐ Don't look to supermarket for help
 - ☐ Do not eat fruits and vegetables
11. How aware are you with the 5 A Day The Color Way health message?
- ☐ Not aware
 - ☐ Somewhat aware
 - ☐ Very aware
12. Would you say that you are more aware now than a year ago?
- ☐ Yes, more aware
 - ☐ No, as aware as a year ago
13. What made you aware of the 5 A Day The Color Way message? Please select all that apply.
- ☐ Supermarket
 - ☐ Advertisements
 - ☐ Radio
 - ☐ Billboards
 - ☐ School
 - ☐ Medical office
 - ☐ Food packages
 - ☐ Newspaper/magazines
 - ☐ The Internet
 - ☐ Other
 - ☐ Don't know/don't remember
14. Please select *three messages* that would help you eat more fruits and vegetables. Please select your top three responses.
- ☐ In addition to healthy vision, green fruits and vegetables help maintain strong teeth and bones
 - ☐ Eat 5-13 Every Day
 - ☐ Eat 2 1/2 to 6 1/2 cups Every Day
 - ☐ Colorful fruits and vegetable taste good and are good for you
 - ☐ Convenient, Portable and Delicious!
Fruits and Vegetables Fits Busy Lifestyles
 - ☐ Enjoy the endless variety of colorful fruits and vegetables and the health benefits they provide
 - ☐ None of the above would make me eat more fruits and vegetables

Appendix C: Fruit and Vegetable Recommendations from Dietary Guidelines for Americans, 2005

		ACTIVITY LEVEL								
Gender	Age (years)	Sedentary	F/V Cups	F/V Serv.	Moderately Active	F/V Cups	F/V Serv.	Active	F/V Cups	F/V Serv.
FEMALE	CHILD 2-3	1,000	2	4	1,000-1,400	2-3	4-6	1,000-1,400	2-3	4-6
	4-8	1,200	2 1/2	5	1,400-1,600	3-3 1/2	6-7	1,400-1,800	3-4	6-8
	9-13	1,600	3 1/2	7	1,600-2,000	3 1/2-4 1/2	7-9	1,800-2,200	4-5	8-10
	14-18	1,800	4	8	2,000	4 1/2	9	2,400	5	10
	19-30	2,000	4 1/2	9	2,000-2,200	4 1/2-5	9-10	2,400	5	10
	31-50	1,800	4	8	2,000	4 1/2	9	2,200	5	10
	51+	1,600	3 1/2	7	1,800	4	8	2,000-2,200	4 1/2-5	9-10
	MALE 4-8	1,400	3	6	1,400-1,600	3-3 1/2	6-7	1,600-2,000	3 1/2-4 1/2	7-9
	9-13	1,800	4	8	1,800-2,200	4-5	8-10	2,000-2,600	4 1/2-5 1/2	9-11
	14-18	2,200	5	10	2,400-2,800	5-6	10-12	2,800-3,200	6-6 1/2	12-13
	19-30	2,400	5	10	2,600-2,800	5 1/2-6	11-12	3,000	6 1/2	13
	31-50	2,200	5	10	2,400-2,600	5-5 1/2	10-11	2,800-3,000	6-6 1/2	12-13
	51+	2,000	4 1/2	9	2,200-2,400	5	10	2,400-2,800	5-6	10-12

Appendix D: About 5 A Day The Color Way

In an effort to move more fruits and vegetables onto America's plate, Produce for Better Health Foundation (PBH) launched 5 A Day The Color Way, an innovative, multifaceted campaign to promote healthier eating. The campaign, launched in October 2002, urges consumers to eat a colorful variety of fruits and vegetables, at least 1 serving daily from each of the campaign's 5 color groups: blue/purple, green, white, yellow/orange and red. 5 A Day The Color Way's development and implementation was made possible with specialty crop grants from California Department of Food and Agriculture, Florida Department of Agriculture and Consumer Services, and the Arizona Department of Food and Agriculture.



Appendix E: Glossary of Research Terms

Annual eatings per capita—The number of times the average person consumes the item annually; does *not* measure actual volume.

As is—Fruits and vegetables eaten in an identifiable form, either as a base dish (an apple eaten as an apple) or an additive (a banana sliced on cereal).

Eating—An eating “occasion”; does *not* measure actual volume consumed.

Ingredient—Fruits and vegetables that have been used to prepare another dish (vegetables in beef stew, apples in apple cobbler).

On deal—“Deal” is defined by the consumer; they recognize and report some sort of special promotion (temporary price cut, manufacturer coupon, store sale of buy two get one free).

Serving—Measures actual volume consumed, using the Continuing Survey of Food Intakes by Individuals (CSFII) portion sizes (broken down by age and gender).

Traditional family—One working parent with children at home.

Working parents—Male and female <65 years, both employed with children.



5341 Limestone Road
Wilmington, DE 19808
Phone: 302.235.2329
Fax: 302.235.5555
www.pbhfoundation.org
www.5aday.org

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