

India's Phytonutrient Report



*A Snapshot of
Fruits and Vegetables Consumption,
Availability and Implications for
Phytonutrient Intake*



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Presentation of the Key Findings



*4th February, 2016 (Thursday)
New Delhi*

Objective of the Study

- *To understand the 'actual' consumption patterns of fruits and vegetables in India and compare this to the WHO 'recommended' quantity for an adult*
- *To find out the reasons for the shortfall wherever they exist and make policy recommendations*

The World Health Organization (WHO) panel on diet, nutrition and prevention of chronic diseases recommended a daily intake of at least 400 grams (or five daily servings with an average serving size of 80 gm) of fruits and vegetables, excluding potatoes, cassava and other starchy tubers, to prevent diet-related chronic diseases and micronutrient deficiencies.

ONE SERVING



1 cup (80g)

or

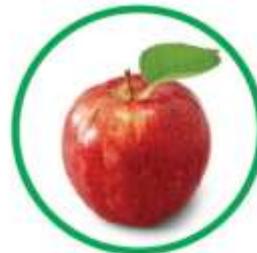


½ cup (80g)

or



½ cup (80g)



1 piece

or



½ cup (80g)

or



½ cup (80g)

Advantage India

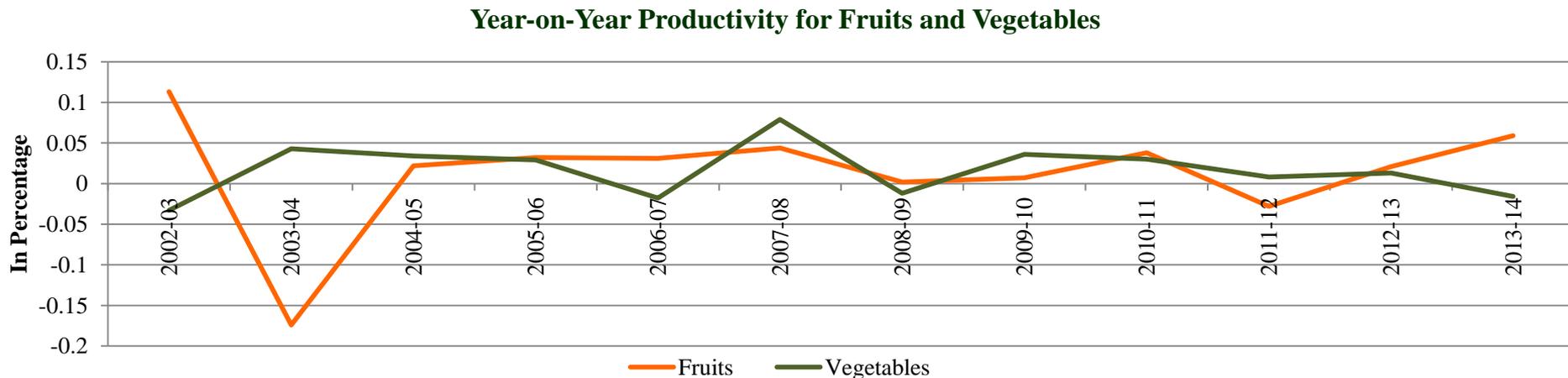
- India is one of the fastest growing economies in the world – it will outgrow China by the end of 2016 (IMF, World Economic Outlook)
- With a middle-class population of about 23.6 million people, India ranks 8th among 215 countries in terms of the number of middle-class adults in 2015 – this is likely to grow further
- World Bank estimates that 59.2 per cent of the Indian GDP was consumed in 2013 out of which around 30 per cent was on food and beverage combined in 2013-14
- India is one of the largest producers and a net importer of many fruits and vegetables
- Fruits and vegetables are available in different formats (chopped, tinned, juice etc.) and through multiple retail channels

- *Fastest growing economy with a rising middle class*
- *Availability of fruits and vegetables is likely to increase*
- *Large consumption base, increasing share of fruits and vegetables in consumption basket*

Availability of Fruits and Vegetables (1/2)

- Production

- One of the largest producer of fruits and vegetables
- During 2013-14, India produced 88.98 million metric tonnes of fruits and 162.89 million metric tonnes of vegetables
- The year-on-year productivity of fruits and vegetables has remained more or less constant since the year 2004-05
- There are variations in the production of fruits and vegetables across states



Availability of Fruits and Vegetables (2/2)

- Trade
 - India is a net importer of fruits and vegetables
 - Trade is rising and it is likely to grow further
 - Though India has imposed high tariff on import of fruits and vegetables, tariffs for some products are being liberalised under trade agreements
- Consumption
 - Between 1993 and 2011, the proportion of household expenditure on total food items has decreased, however, the proportion of income spent on fruits and vegetables has not changed much
 - On an average, the Indian diet pattern is skewed towards cereals; fruits and vegetables account for only 9 per cent of the total calorie intake (NSSO)
- Prices
 - Rise in prices of food items has played a major role in raising household expenditure
 - There are inter-state differences in the prices that affect consumption pattern

While the available secondary information broadly gives the production and consumption situation in India, it does not provide information on the detailed consumption pattern, consumer perspective, factors determining the consumption pattern and awareness about regulations. To fill this lacuna, a primary survey was conducted

About the Survey

- *The survey covered 1001 individuals drawn from households across five cities namely NCR (New Delhi, Delhi; Gurgaon, Haryana and Noida, Uttar Pradesh), Mumbai (Maharashtra), Chennai (Tamil Nadu), Hyderabad (Telangana) and Kolkata (West Bengal)*
- *A stratified random sample was chosen - respondents selected were 18 years or above in age; there were 58 per cent male respondents and rest were females*
- *The sample consisted of individuals from upper and middle income groups*
- *Trained investigators conducted face-to-face interviews using the recall methodology*
- *Interviews were conducted using a semi-structured questionnaire*

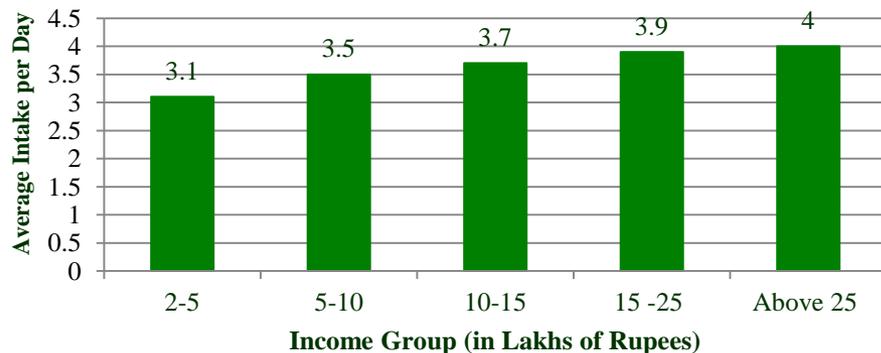
SURVEY RESULTS

Fruits and Vegetables Intake (1/2)

Indian consumers across all income groups are consuming less than the 'recommended' quantity of at least 400 grams (or five daily servings with an average serving size of 80 grams) of fruits and vegetables

- The average intake of fruits and vegetables is 3.5 servings per day, which comprises 1.5 servings of fruits and 2 servings of vegetables
- The average intake of the younger generation is even lower – for 18-25 years it is 2.97 servings per day and for 18-35 years it is 3.3 servings per day
- The average intake among the students is abysmally low at 2.94 servings per day
- Income plays an important role – average daily intake is higher for higher income groups

Average servings of fruits and vegetables per day by income groups



Average servings of fruits and vegetables per day by age groups



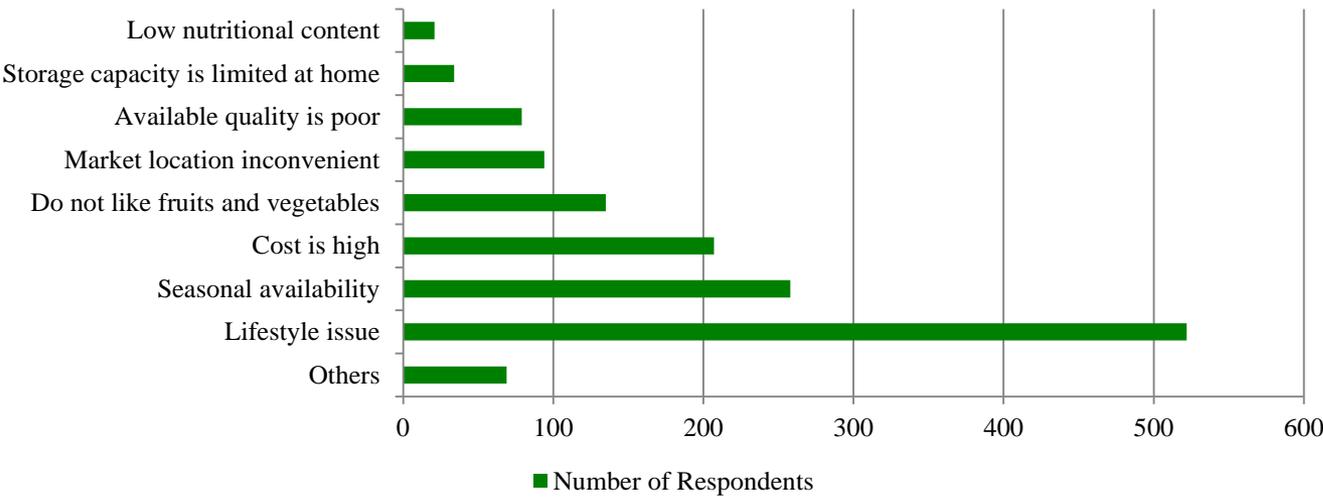
Fruits and Vegetables Intake (2/2)

- Housewives do better in terms of fruits and vegetables intake with an average intake of 3.65 servings as compared to working persons – which is 3.5 servings per day
- There is inter-city variation in consumption – it is the highest in Chennai (average intake of 4.35 servings per day) and the lowest in Kolkata (average intake of 2.81 servings per day)
- There are variations across diet types – the average daily intake of fruits and vegetables is 3.97 servings for a person with a Jain diet, while it is 3.87 servings for a vegetarian, 3.43 servings for an egg vegetarian and 3.2 servings for a non-vegetarian

Awareness about WHO Recommendation

- The level of awareness about the WHO recommendation is low – 89 per cent of the respondents are not aware
- Around 50 per cent of those aware of the WHO recommendations have educational qualification of post graduate and above
- Almost 95 per cent of the respondents are aware of the benefits of fruits and vegetables in general
- Print and electronic media are the key sources of information

Reasons for Not Meeting the WHO Recommendation...

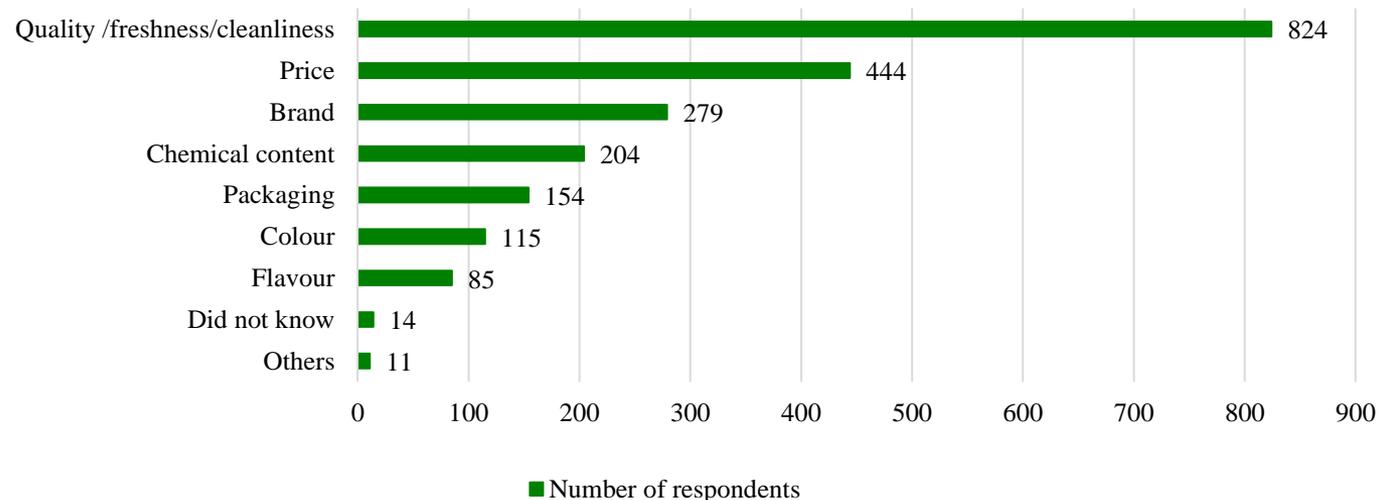


- Lifestyle** is the topmost reason provided by the survey respondents (51.1 per cent) followed by seasonal availability (25.7 per cent) and high cost (20.6 per cent) for their inability to meet the WHO recommendation*

Note: "Others" primarily include strict preference for non-vegetarian food or junk food

Criterion for Purchase of Fruits and Vegetables...

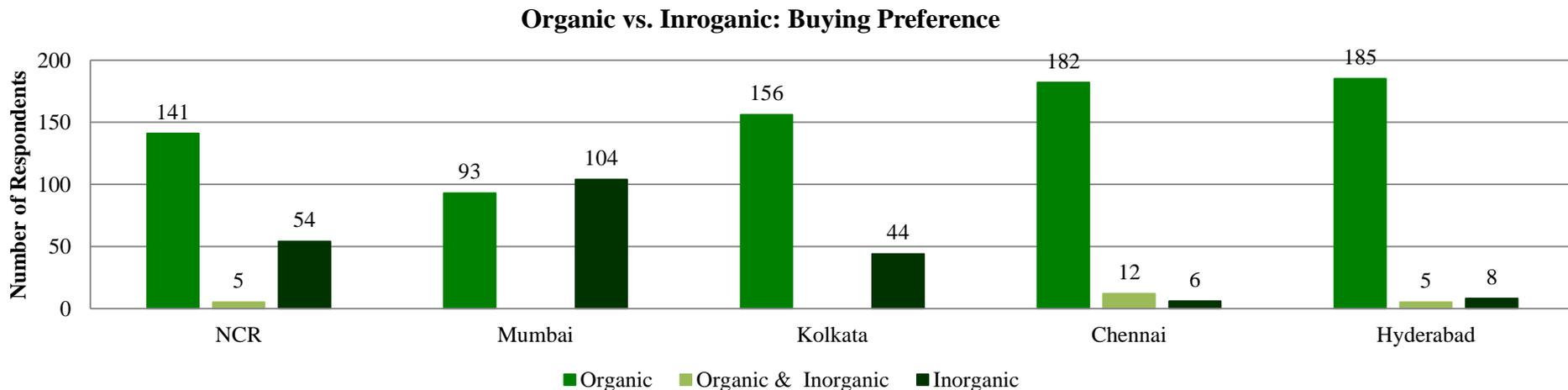
- Quality and freshness** of the product are the most important criteria based on which consumers purchase fruits and vegetables*



Note: "Others" primarily include nutrition content, seasonal availability.

Buying Preferences

- A majority of Indian consumers (75.6 per cent) are willing to purchase organic products as they consider them to be of better quality and free of pesticides and chemicals
 - However, only 29 per cent of the respondents actually buy organic products. Around 58 per cent of respondents who want to buy organic products are willing to pay higher prices for it
- The gap between the willingness to buy and actual purchase is due to non-availability of organic fruits and vegetables
- A majority (56 per cent) of the respondents are willing to purchase non-branded fruits and vegetables as they feel that branded products are over-priced, contain preservatives and are not always fresh and chemical free



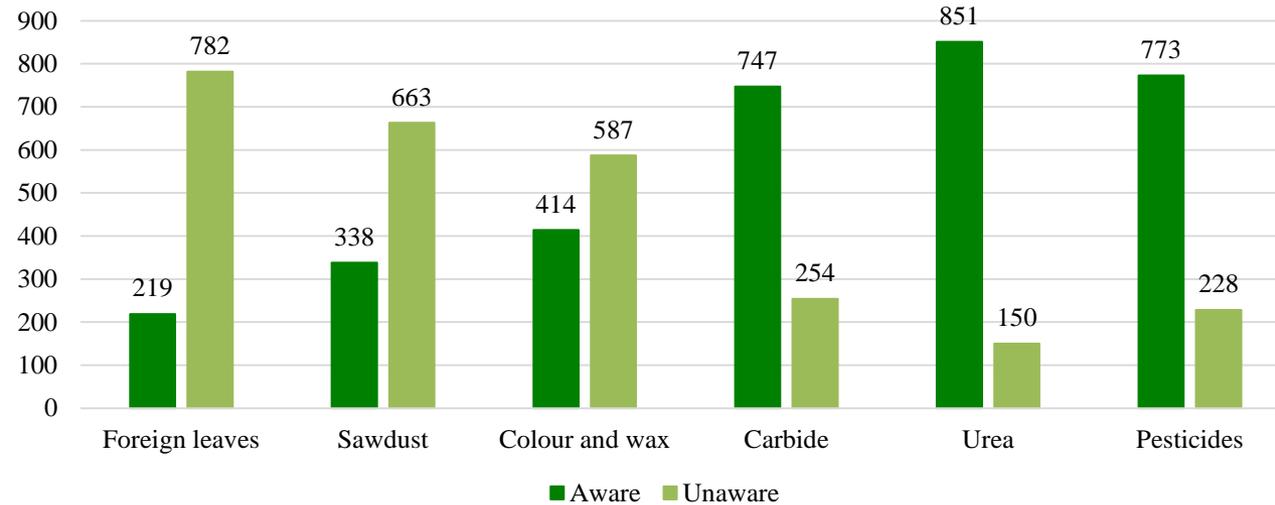
Use of Nutritional Supplements

- Consumption of nutritional supplements is quite low in India – only 21.2 per cent of the respondents consume nutritional supplements
- The consumption is relatively high in southern cities (Chennai and Hyderabad) and is the lowest in Mumbai
- Only 12.4 per cent of the respondents in the age group 18-25 years have health supplements and only 8.8 per cent of the students have them
- Intake of supplements is higher among vegetarians - 27.4 per cent of vegetarians consume them, compared to only 17.3 per cent of the non-vegetarians
- Respondents prefer to buy health supplements from general stores (79 per cent) and pharmacies (67 per cent)

Other Survey Highlights

- Indian consumers prefer to buy fruits and vegetables from the local markets (53.3 per cent) and push carts (18.8 per cent)
- Consumers are well aware of the presence of adulterants in fruits and vegetables (97.3 per cent)
- A majority of the respondents clean and consume the fruits and vegetables (53.3 per cent), there are some who buy them from selected outlets only (38.5 per cent), while others buy only organic products (29 per cent)
- Very few consumers are aware of the regulation related to food safety and consumer awareness. Around 30.1 per cent are aware of the Consumer Protection Act, 1986 while 33.5 per cent are aware of the Food Safety and Standards Act, 2006

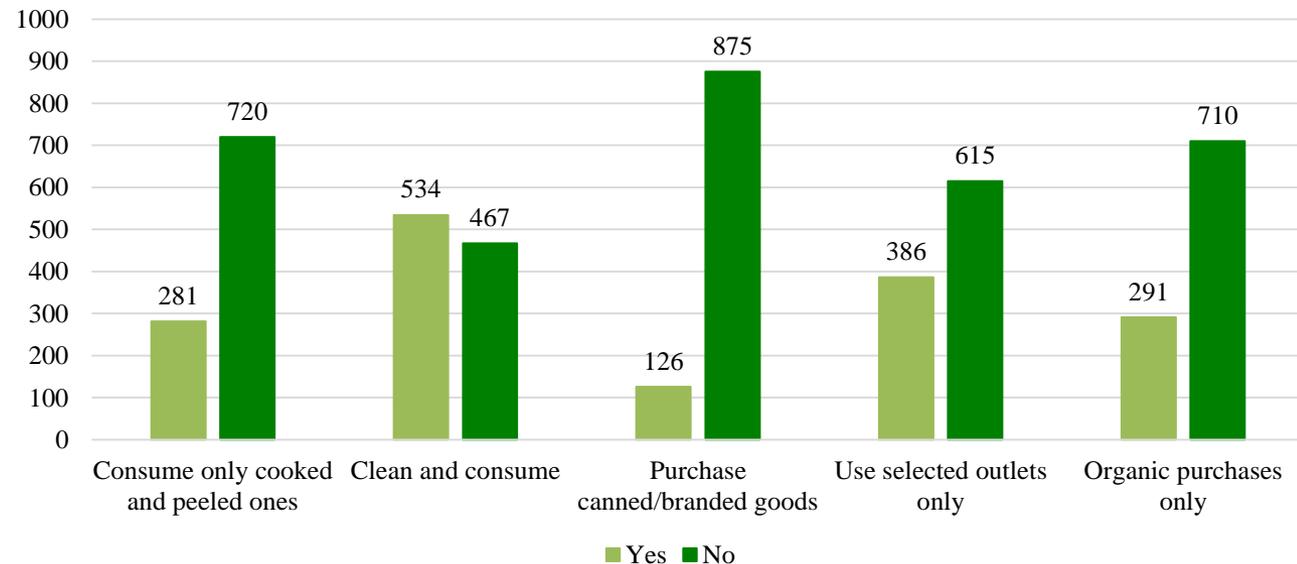
Awareness of presence of adulterants in fruits and vegetables



- 98.3 per cent of the respondents claim that they are affected by the presence of adulterants in fruits and vegetables

Approach to tackle the problem of adulterants in fruits and vegetables

- To tackle this problem, the main method used is to clean it very well before consuming – 53.3 per cent of the respondents consume fruits and vegetables after cleaning them



Barriers in the Supply Chain and their Impact on Consumption (1/2)

The level of food processing in India is low – 2.2 per cent (MoFPI); about 18 per cent of fruits and vegetables get wasted in the supply chain

Apples, peaches, strawberries and cucumber are some of the fruits and vegetables identified with multiple pesticides in the past

- High prices and seasonality of production are crucial barriers affecting consumption
- Some states have not adopted the model Agriculture Produce and Marketing Committee (APMC) Act and, therefore, they do not allow direct sourcing – leading to a fragmented supply chain
- There are inter-state barriers in the movement of fruits and vegetables – waiting at check-posts leads to delay and wastage
- India imposes high import tariff on fruits and vegetables - in 2015-16, fruits and vegetables like broccoli, carrots, bananas, pineapples, papaya, watermelon and green chillies faced 30 per cent import tariff while garlic faced a tariff of 100 per cent
- In India, the food and grocery sector is largely non-corporate and there are restrictions on foreign direct investment in multi-brand retail
- Some states do not allow direct sourcing - global multinationals have not shown interest in investing in the Indian food supply chain

Barriers in the Supply Chain and their Impact on Consumption (2/2)

- High taxes on processed fruits and vegetables and variations in taxes across states discourages processing
- Low awareness among Indian consumers about the WHO Recommendation
- FSSA, 2006, does not cover traceability of farmers and there is high incidence of pesticide residue
- Consumer protection regulations are outdated and consumer courts take time to evaluate cases and pass judgment; consumer fora are not strong enough to raise their voices against quality issues
- Indian consumers do not supplement their low intake of fruits and vegetables with nutritional supplements
- India does not have any specific regulation for nutraceuticals products and food supplements

The FSSAI has proposed a draft *Food Safety and Standards (Food or Health Supplements, Nutraceuticals, Foods for Special Dietary Uses, Foods for Special Medical Purpose, Functional Foods, and Novel Food) Regulations, 2015*. However, the regulation is yet to be finalised

The Way Forward and Policy Recommendations (1/2)

Ensure traceability back to the farm to ensure maintenance of hygiene and quality standards

Work with farmers, support their training and share knowledge

Cover both store and non-store retail formats under consumer protection regulations

Generate awareness among consumers, especially students and the younger cohort regarding the recommended intake of fruits and vegetables

Ministry of Food Processing Industries should generate awareness about the benefits of processed fruits and vegetables

Improve availability of organic products

Restrictions on contract farming should be addressed to attract investments at the farm level

Private investments should be monitored to safeguard the interests of farmers, producers and consumers

The Way Forward and Policy Recommendations (2/2)

Performance linked incentives should be given to food processors to encourage food processing

Government can help food processors by sharing information on quality, working with the private sector to have state-of-the-art product testing laboratories, etc.

Lower taxes on processed fruits and vegetables

Government may explore the possibility of liberalising FDI in multi-brand retail and ease conditions on foreign investors to improve access to a variety of products

Identify gaps in food supply chain infrastructure and focus policy on the creation of the right infrastructure

Infrastructure bottlenecks have to be addressed through right policies

Delist fruits and vegetables from APMC so that there is no APMC cess and remove restrictions on inter-state movement of fruits and vegetables

THANK YOU

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