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Slide Materials on Genetically Modified (GM) Crops



バイオテクノロジー情報普及会

COUNCIL FOR BIOTECHNOLOGY INFORMATION JAPAN

Genetic modification technologies are developing possibilities for contributing to people's everyday lives.

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Table of Contents

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I. Significance	4	IV. Usage	
Future Global Challenges Related to Agriculture	5	Global Usage Status	30
Contributions and Potential of Genetically Modified Crops	6	Usage Status in Japan	33
II. Technology	11	Evidence Indicating Safety	35
Biotechnology Basics	12	Three Projects in Europe That Reconfirmed Safety	36
Wild and Cultivated Species	13	Carcinogenicity to Animals That Has Been Denied	37
History of Agriculture and Breeding	14	V. Regulatory System	38
Major Conventional Breeding Technologies	15	International Regulatory Framework	39
Differences Between Conventional and Genetic Recombination Breeding	17	Definition of Genetically Modified Organisms	40
Methods for Producing Genetically Modified Crops	18	Regulatory Systems in Japan	41
New Breeding Technologies	20	Assessment of Adverse Effects on Biological Diversity	43
III. Examples	21	Food Safety Assessment	46
From Development to Practical Application of Genetically Modified Crops	22	Feed Safety Assessment	48
Herbicide-tolerant Crops	23	Labeling	49
Insect-resistant Crops	24	Regulatory Systems in Other Countries	51
Disease-resistant Crops	25	VI. Acceptance	55
Drought-tolerant Crops	26	Consumer Awareness Survey Conducted by the Council for Biotechnology Information Japan	56
Other Genetically Modified Crops	27	Investigation by the Food Safety Commission of the Cabinet Office	60
Genetically Modified Crops under Development	28		

Contributions and Potential of Genetically Modified Crops (1)

Stable Supply of Food

Contributions of GM crops that have been cultivated to date

GM crops under development



Herbicide-tolerant Crops



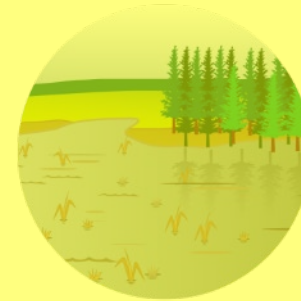
Disease-resistant Crops



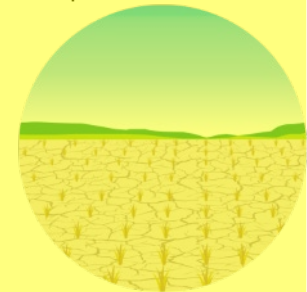
Insect-resistant Crops



Drought-tolerant Crops



Flood-resistant Crops



Salt-resistant Crops

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A stabilized harvest and secondary cropping allow:

- An increase in yield of **20%** or more, compared to non-GM crops¹
- An annual yield growth effect equivalent to **23 million ha** of agricultural land worldwide²

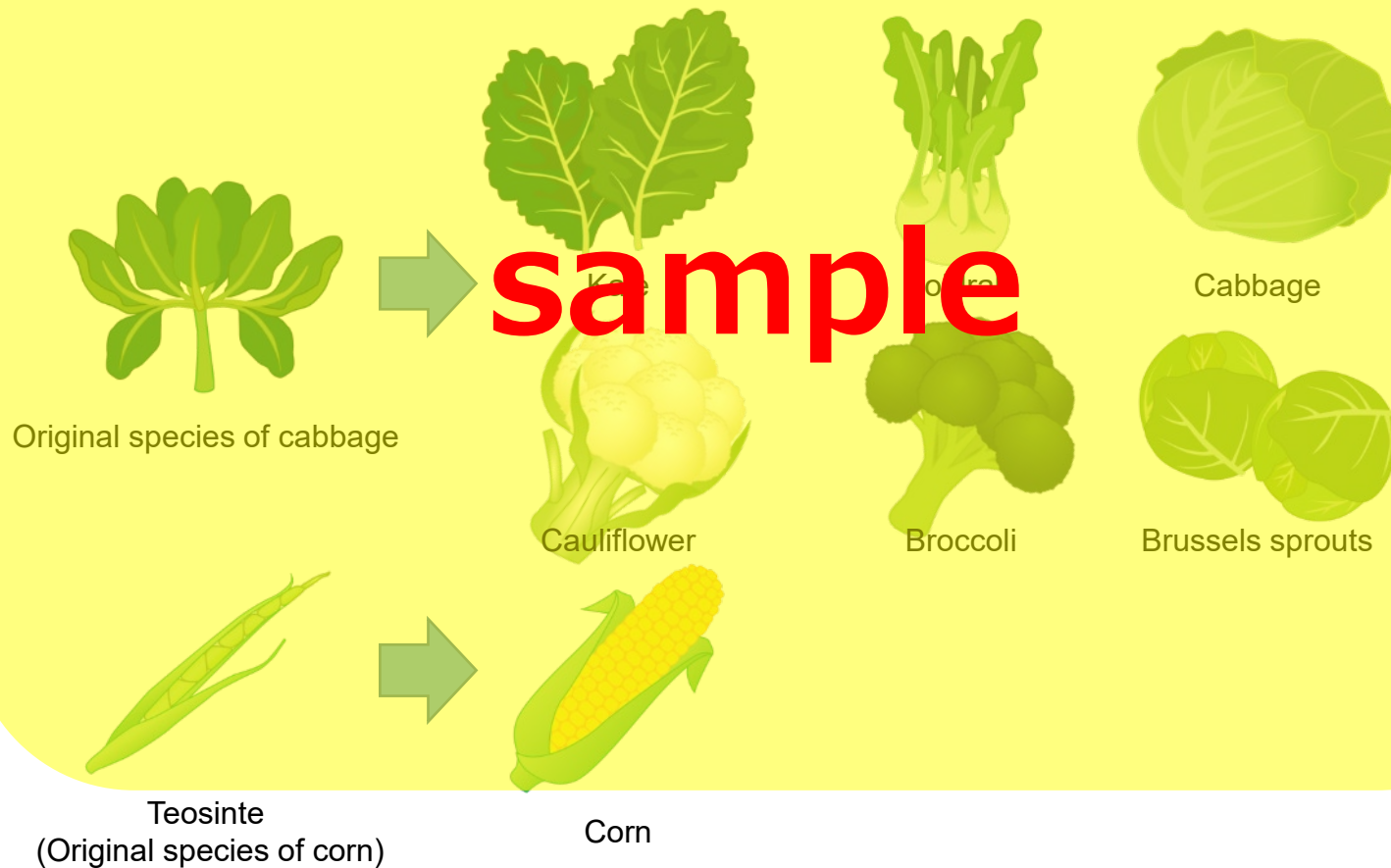
Expected to ease the impact of climate change on harvests

1. Klümper and Qaim (2014) A Meta-Analysis of the Impacts of Genetically Modified Crops. PLoS ONE 9(11).
2. Graham Brookes (2022) Farm income and production impacts from the use of genetically modified (GM) crop technology 1996-2020 DOI:10.1080/21645698.2022.2105626

Wild and Cultivated Species

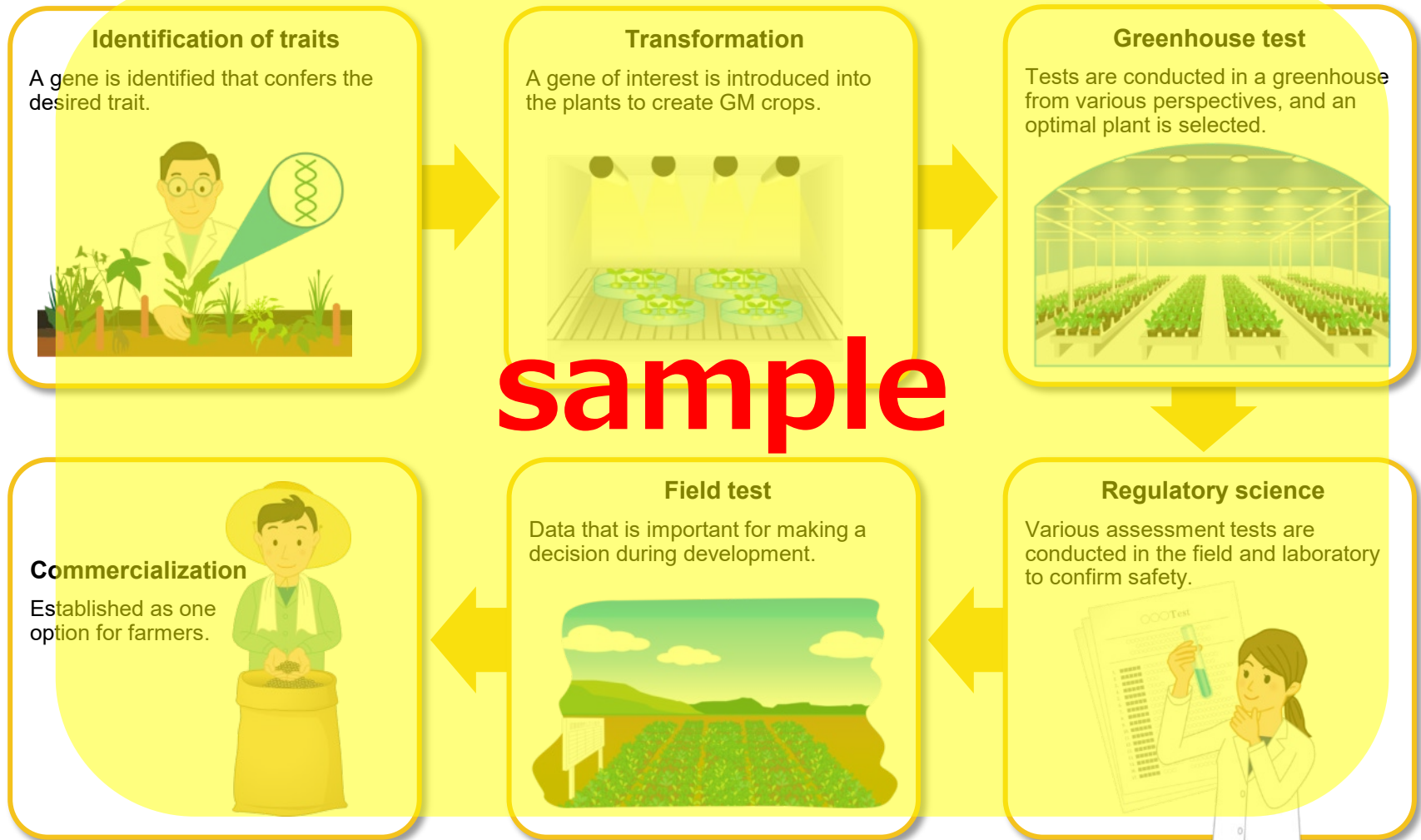
The agricultural products we consume have not always had their current appearances and tastes.

In order to survive in a harsh natural environment, a wild species may possess an uneven growth period, have seeds covered with a thick seed coat or thorns, or contain harmful components. Since humans began selecting wild species and farming, selective breeding has been repeatedly performed over a long period of time, resulting in the creation of cultivated species that are convenient for humans.



Flow from Development to Practical Application of Genetically Modified Crops

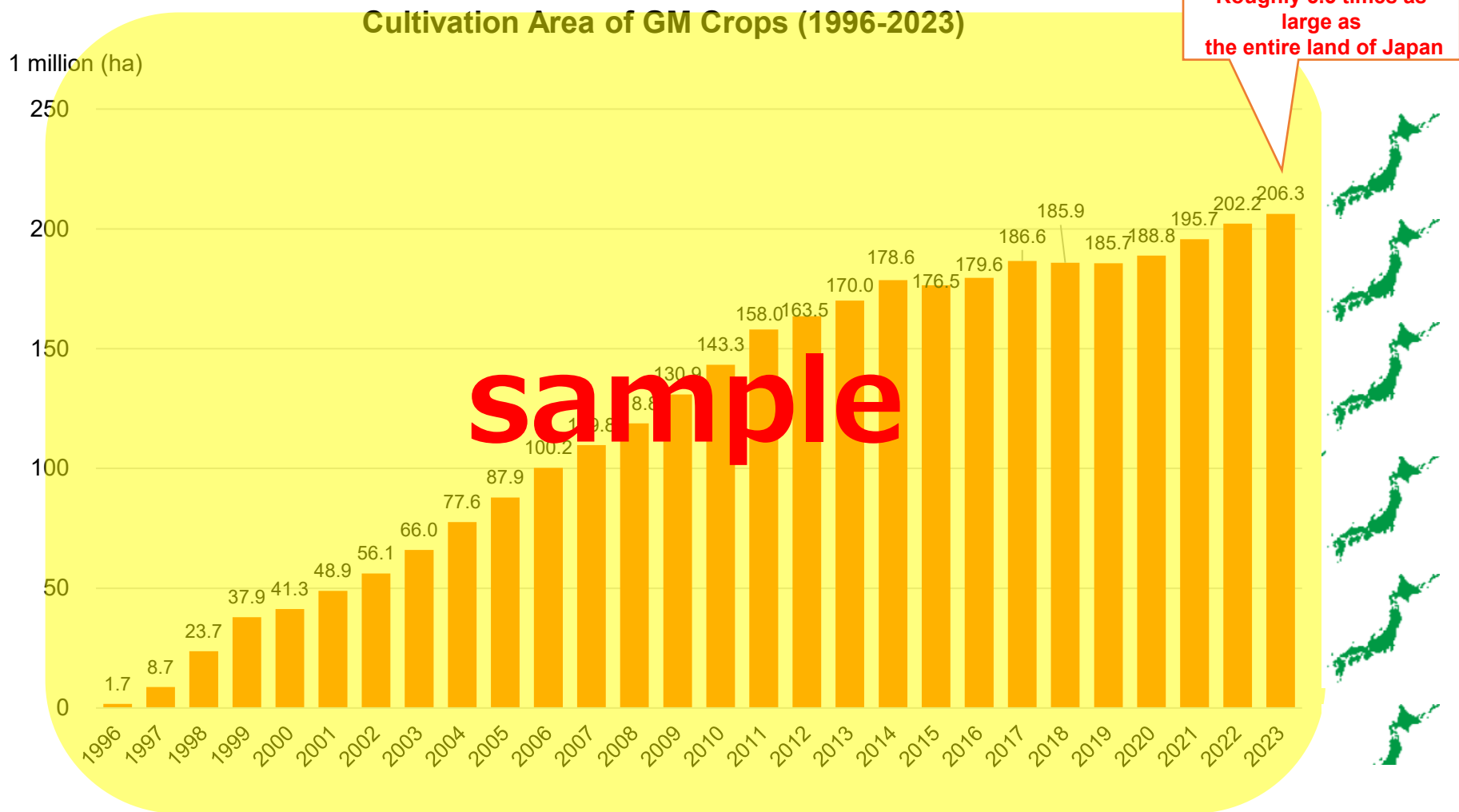
An average of 16.5 years and 115 million dollars are required from the research and development stage to practical application.¹



1. AgbioInvestor /CropLife International, 2022. [Time and Cost to Develop a New GM Trait](https://cbijapan.com/wp-content/uploads/2018/01/Lifecycle-of-a-GMO-Infographic_JPN.pdf)
Reference https://cbijapan.com/wp-content/uploads/2018/01/Lifecycle-of-a-GMO-Infographic_JPN.pdf

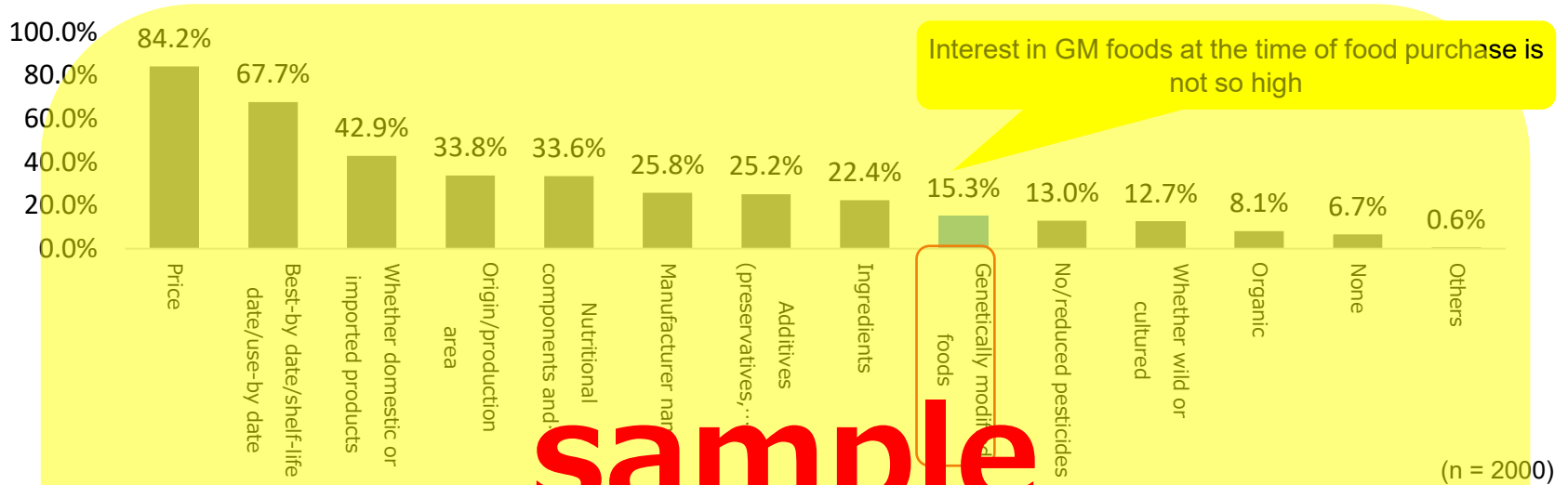
Global Usage Status (1)

Cultivation Status of Genetically Modified Crops (2023)

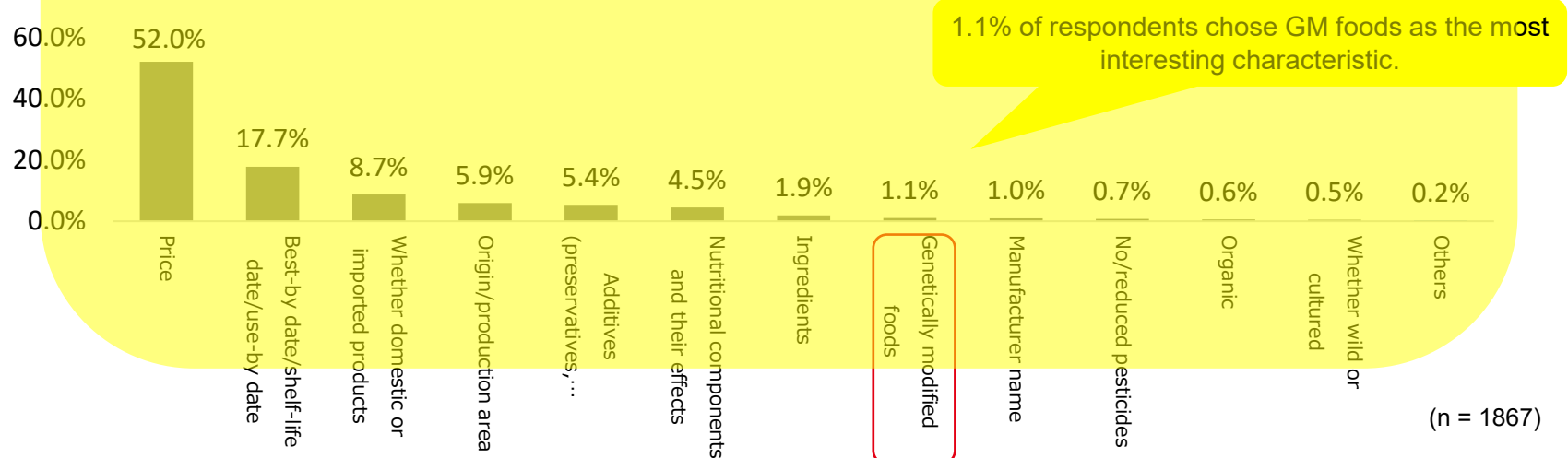


Consumer Awareness Survey Conducted by the Council for Biotechnology Information Japan (1)

What have you recently been interested in when purchasing food items? (multiple answers allowed)



In addition, please choose what you are most interested in (one item)



Source : The Council for Biotechnology Information Japan (2021) Consumer Awareness Survey toward genetically modified/genome-edited foods (total of 2,000 men and women in their 20s to 50s) <https://cbijapan.com/document/4453/>