

# Segregation Measures of (Non-)GM Crops and their Implications of Supply Chains in Japan

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# Mandatory Labeling and its Impact on IP System



# After the introduction of mandatory labeling of GMOs (April 2001) ...

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- ▶ For **Consumers: Nothing has changed:**

No product labeled as GM, No price changes ...

Consumers are given no option to choose!

GM issues appear just within media.

- ▶ For **Food Industry: Drastic changes of food system occurred,** in particular, to food items under mandatory labeling. (... I will explain later what this means.)

- ▶ Since 2001, this broad picture has not changed much.

However, recent issues may change this picture...

(1) **soaring grain price,** (2) **stacked GMOs**

## Background of the Issue:

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### Everything Started from August 10, 1999

1997~98 Consumers' Concerns over GM Have Been Increasing.

Some Manufacturers and Retailers started to procure Non-GMO.



Aug 10, 1999: Japanese Gov decided to introduce Mandatory Labeling System. (to be enforced from April 2001)

→ 24 food items are included in the list of mandatory labeling



Major shifts from non-segregated grains to Non-GMOs among actors related to US-Japanese Food System.

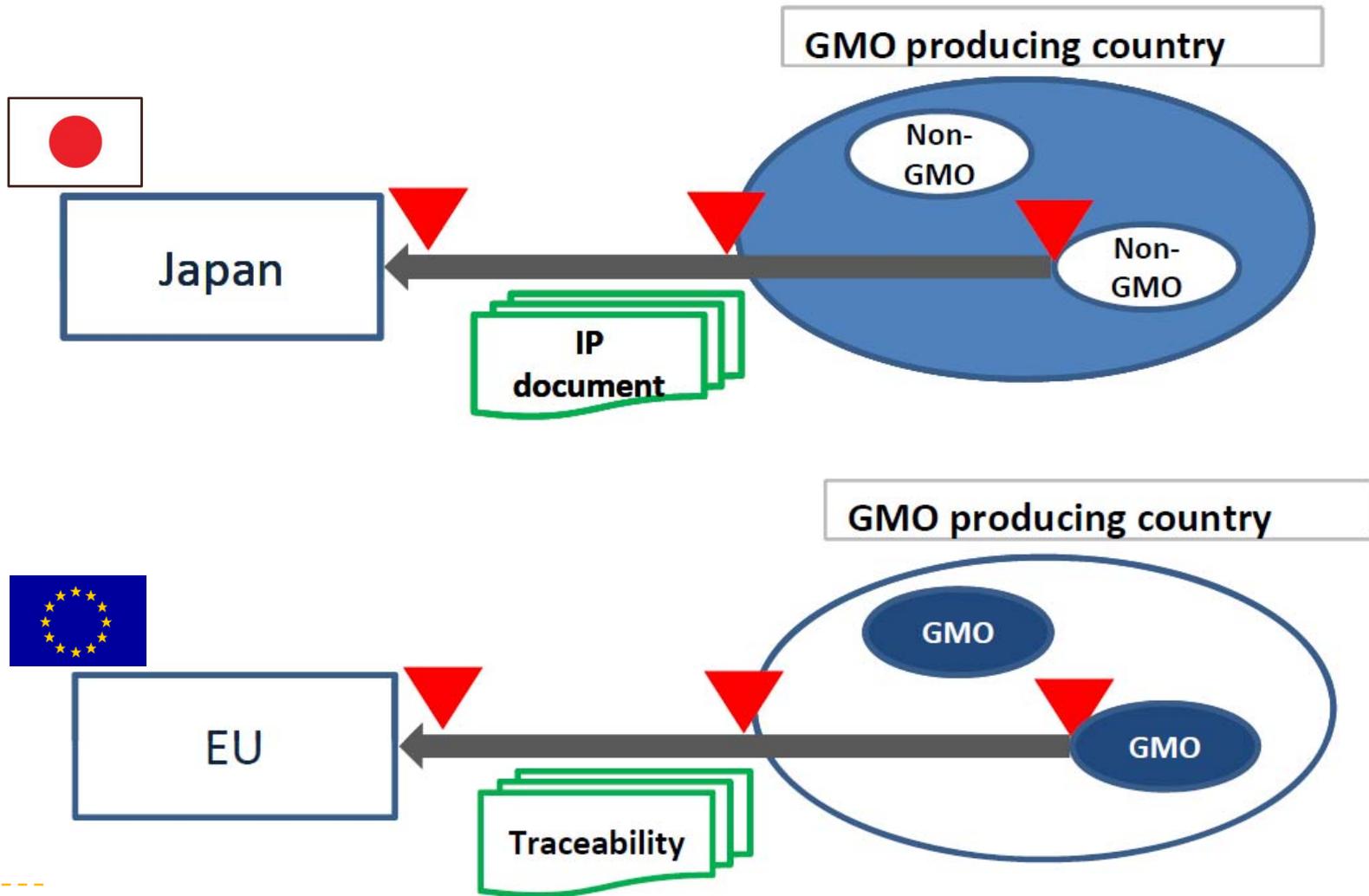
→ Establishment of Identity Preservation System

# GMO Labeling system

	 EU	 Japan
coverage	GMOs imported or cultivated	GMOs imported via <u>bulk shipment</u> (threshold for cultivation=not fixed )
Threshold to be labeled	More than 0.9% of adventitious presence	More than 5% of adventitious presence
Ingredient	Every ingredient	<u>Top 3 ingredients</u> which occupies <u>&gt;5%</u> in total weight
scope	GMO derived products which cannot be detectable is also labeled	GMO derived products which can be <u>scientifically detectable</u> is required to be labeled
exemption	Products with the help of GMOs but not remain in final products	<u>Feed, refined oil, sweetener etc.</u> (Items not detectable transgenic DNA or proteins.)
Traceability of GMOs	<u>GMOs are required to have document to show unique identifier (Traceability)</u>	GMOs do not need information regarding their event.
Requirement of certification for Non-GMOs	Non-GM products do not need additional document to claim Non-GM	<u>Non-GM products need to be accompanied with IP handing document</u>

# Difference of Target of Tracing between EU and Japan

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# IP handling system is introduced:

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- ▶ To food items which are under **mandatory labeling** AND **using non-segregated crops imported from US.**

[shown in **“yellow”** in the following figures.]

- ▶ For example:

**IOM Soybean for Tofu (bean curd) ... 0.7 Million ton**  
(IOM=Indiana, Ohio, Michigan)

**Maize for corn grits and corn starch ... 3.9 Million ton**

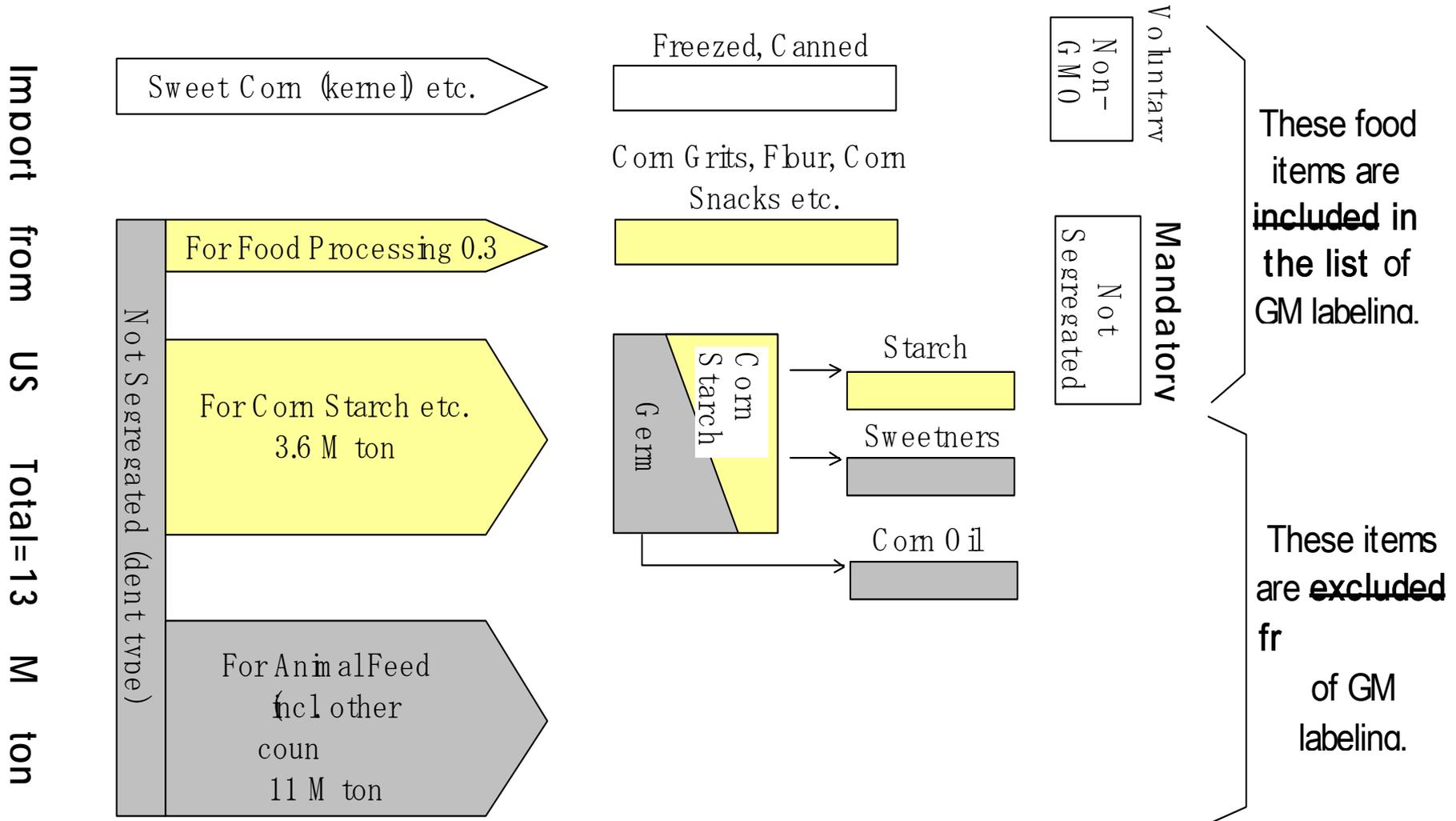
- ▶ In terms of trading partner, **NO CHANGE**

**Establishing IP system from US (+ Canadian soy)**

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# Maize Distribution System at the point of 1999



# Major Changes of Supply Chains Resulting from IP system

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## ▶ SOYBEAN

- Major Change from IOM soybean to Non-GM  
“variety-specified soybean”
- Expand Using Container
- Minimum Change for Oil Crushing (GMO)
- Also minimum change for soybeans (e.g., Natto) used to be procured through contract production.

## ▶ CORN

- Major Shift in Corn for Food Use (incl. Starch)
- Shift also occurred for Sweetener (exempted from labeling)
- Minimum Shift in Corn for Oil and Feed
- Some dairy farmers use Non-GM PHF (post-harvest free) Corn for Non-GM milk.

# Upstream Impacts of IP Handling

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- ▶ Expansion of **Contract Opportunities** for Farmers (=industrialization)
- ▶ Producers' Organization for the Provision of Premium Grains  
(e.g., Premium Grain Growers under the CGB --- Zen-Noh & ITOCHU)
- ▶ **Additional Cost** of IP Handling
- ▶ Differentiation of Farmers' Survival Strategy  
e.g., Production of High-Added Value Crops

# Downstream Impacts of IP Handling

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- ▶ **Reorganization of Commodity Chains**
- ▶ Further Restructuring of Industrial Structure (cost-profit squeeze, etc.)
- ▶ **IP costs are mostly absorbed by food manufacturers** (NOT traders, retailers, nor consumers)
- ▶ Creating Consortium for the Procurement of Non-GMO
- ▶ More stringent level of tolerance (much below 5%) is common to protect their brand

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# Case Study: Starch Industry

[issues]

- high dependence on US corn
- segregation measures
- future issues and prospects

## Basic Condition of Japanese Starch Industry

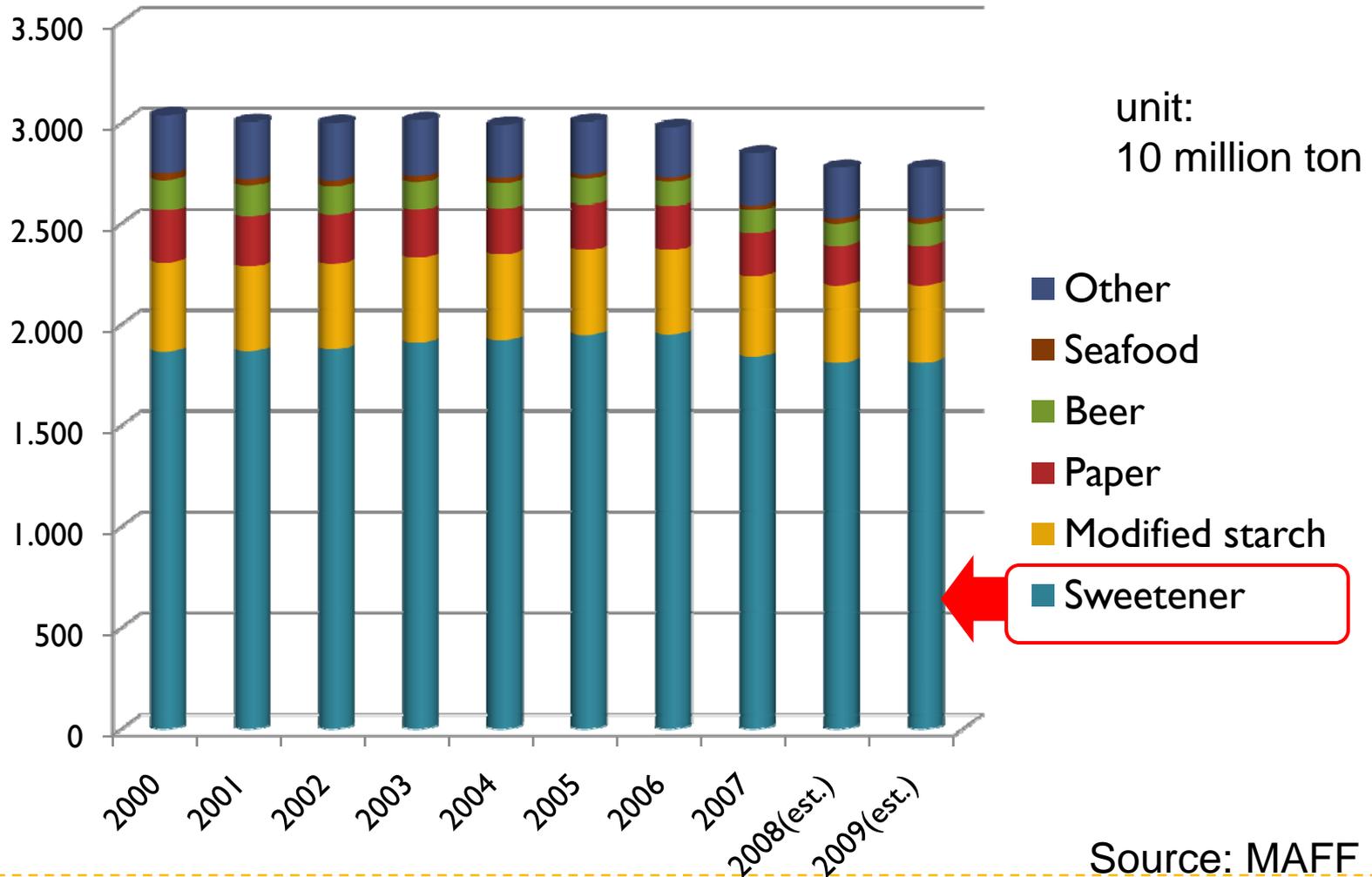
### High dependence on US corn

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- ▶ Japanese starch industry has been highly dependent on **imported maize** as a principal source. This contrasts with **EU situation where diversified source of starch is available** within the internal market.
- ▶ Japan has been continuously dependent on the **US as a principal source of maize import** both for starch and animal feed.
- ▶ As GM maize production and multiple stacked varieties expand, **this structure faces problems for Non-GMO users in Japan**. Quantity-wise, procurement of Non-GM maize face additional difficulties as **ethno** production expands.

# Demand Trend of Starch in Japan

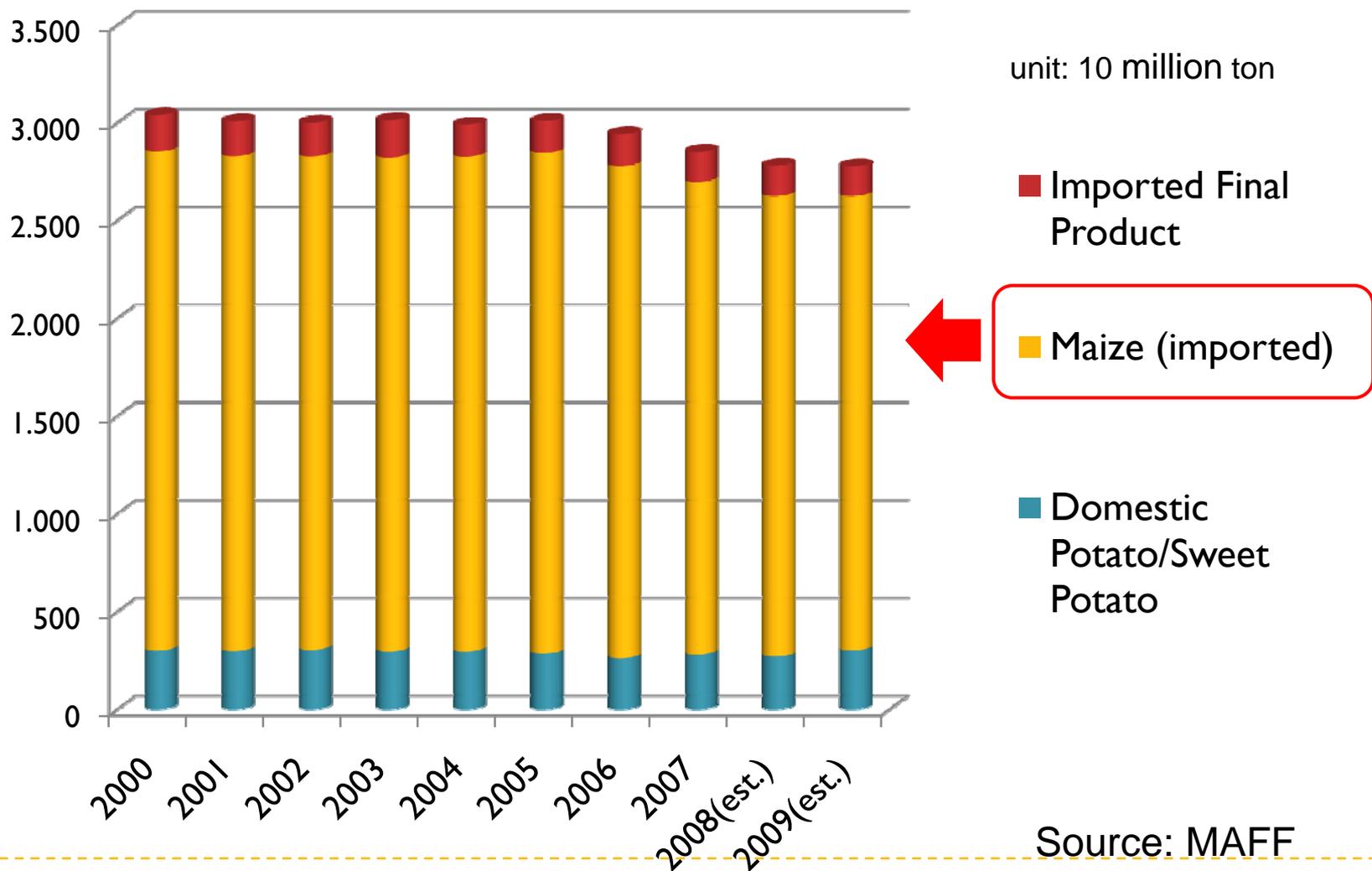
- stable demand of sweetener -



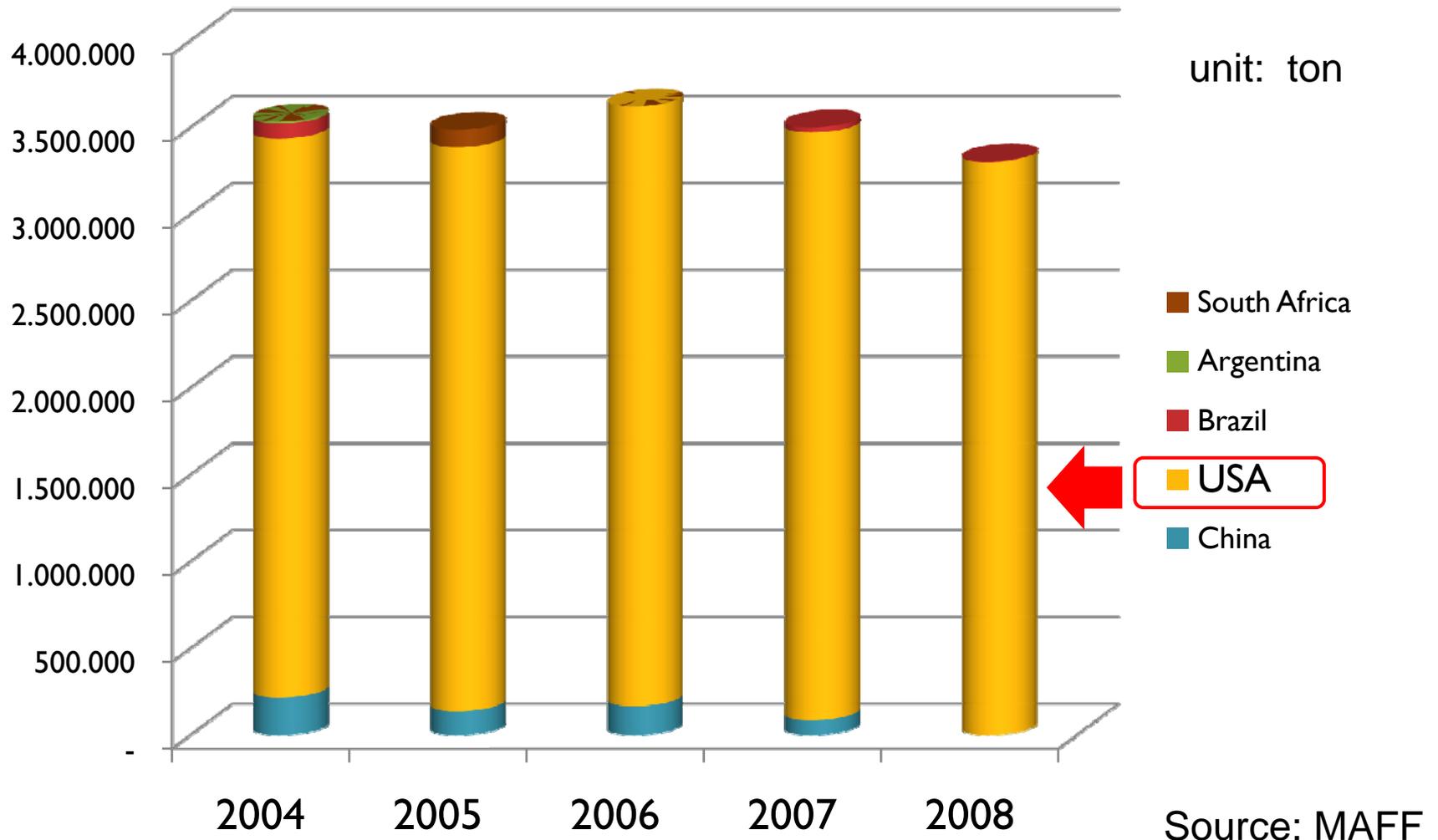
Source: MAFF

# Source of Starch Manufacturing in Japan

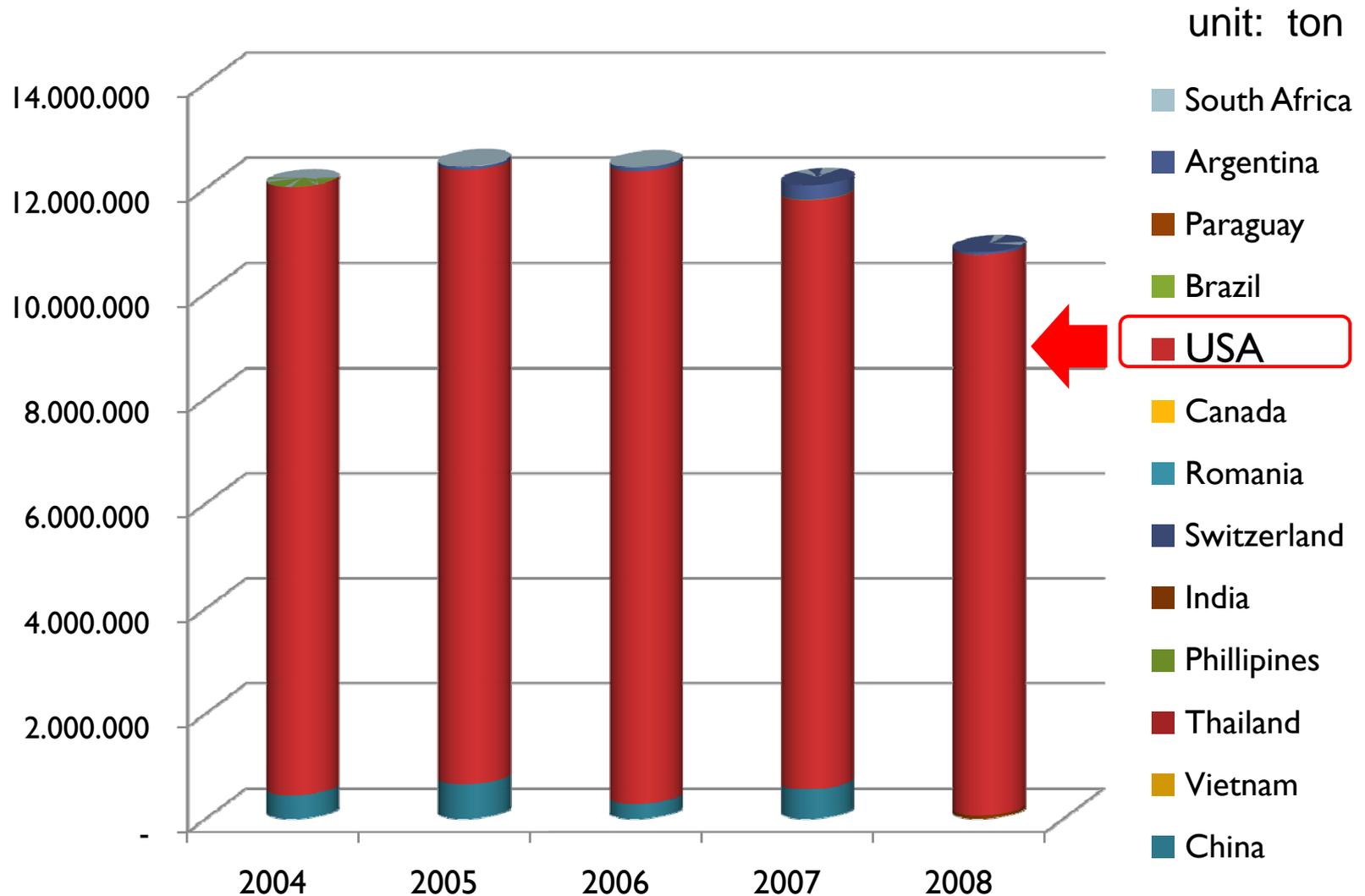
## -Highly dependent on imported maize-



# Amount of Imported Maize by Country -maize for “Starch” manufacturing-



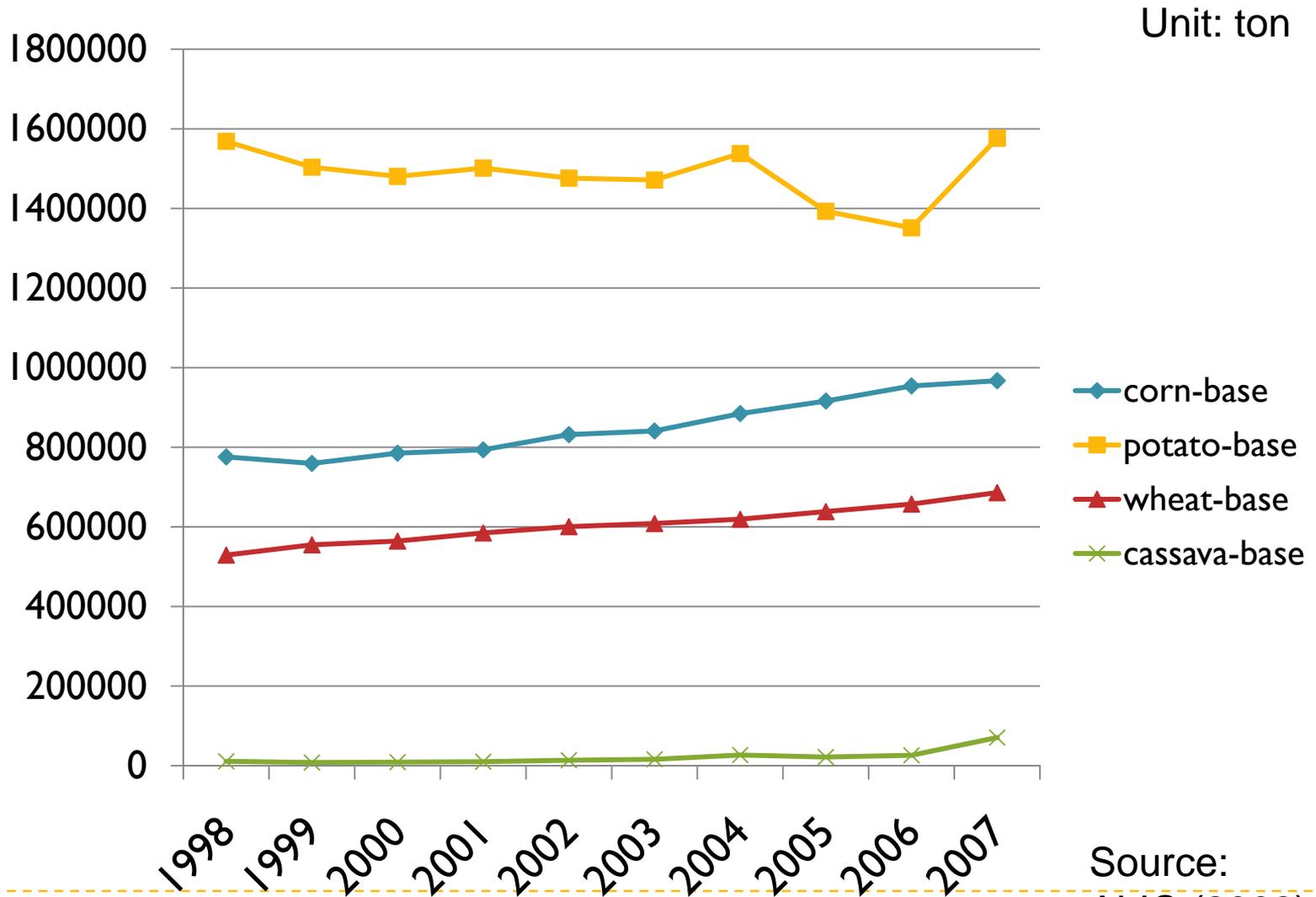
# Amount of Imported Maize by Country -maize for “Animal Feed”-





# Consumption Trend of Starch in EU

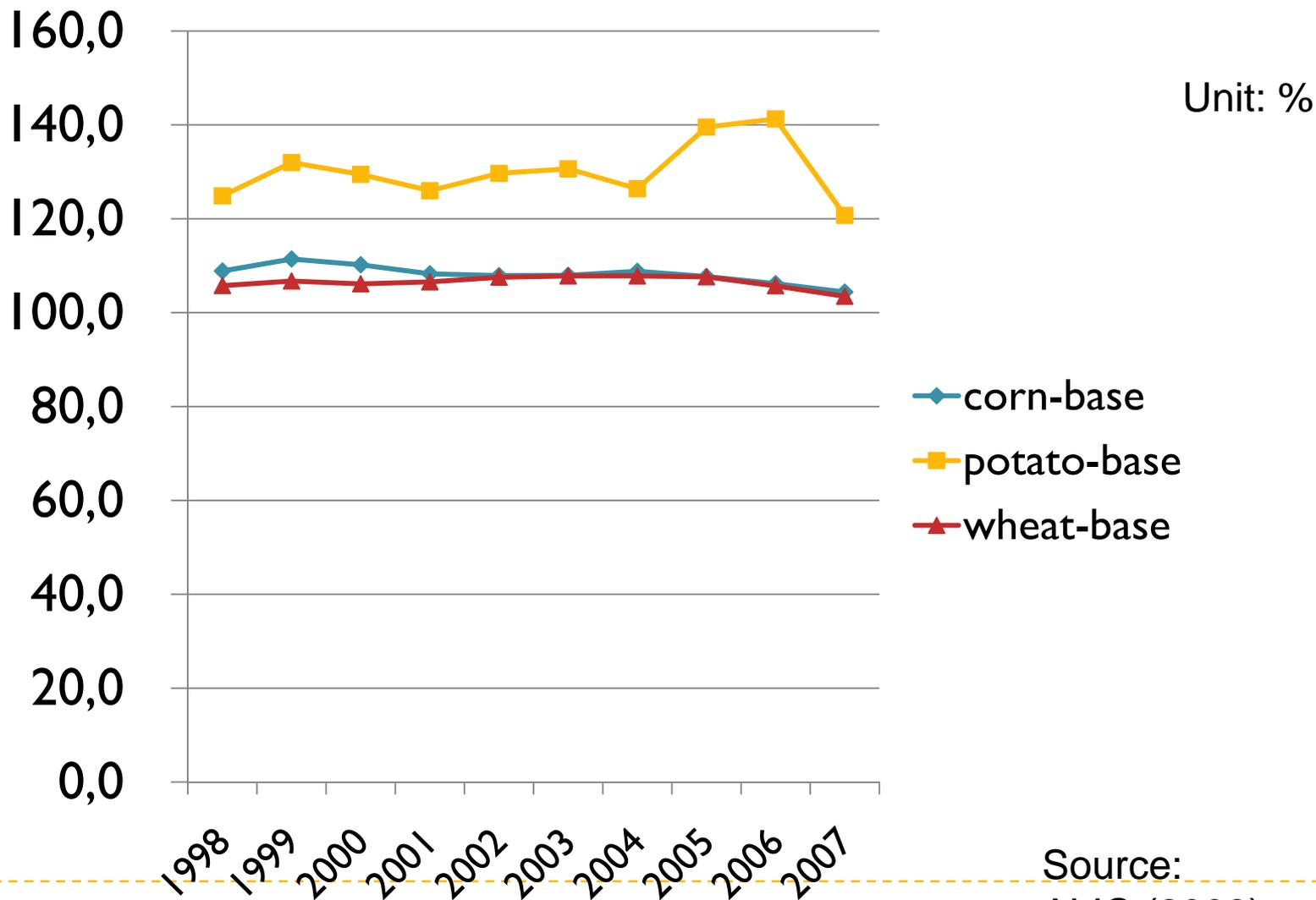
-diversified bases: potato, corn, wheat -



Source:  
ALIC (2008)



# Percentage of Domestic Production of Consumed Starch in the EU



Source:  
ALIC (2008)



# Major Issues of IP Handling System in Starch Industry (2000)

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- ▶ **Availability of Processing Lines dedicated for Non-GM** grains were major issue. (If not, cleaning is required throughout the lines. = additional costs)
- ▶ **Strong demand from beer and soft drink company** to use Non-GM starch.
- ▶ Because of **lower grain prices** and strong demand, most of starch companies use only Non-GM to accommodate this situation.
- ▶ Wet milling produce various products which do not need to be Non-GM (industrial starch, sweetener).  
= **Cannot transfer cost to these products.**

# Current situation of IP handling (2009)

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- ▶ As grain prices soars, starch industry **start to use both Non-GMOs and GMOs [for limited items]**. (Previously, most of companies use Non-GMOs only.)
- ▶ If they switch material from GMOs to Non-GMOs in a manufacturing plant, products processed for **about 10 hours are dealt as GM** products. (Frequency of switching material varies by company.)
- ▶ Non-GMO premium for corn is about **\$1.1/bushel in 2008**, almost **doubled from 2007**, and roughly four times compared with that of several years ago.
- ▶ **Stacked variety** may pose serious challenges in the future.

....This situation is closely related with high dependence on US corn.

# Wet milling products with different market demand complicate starch manufacturers' responses

	food	feed	industrial use
<u>Labeling</u>	Strong demand for Non-GM starch		
Exempted from Labeling	sweetener GM or Non-GM??	gluten feed [ No Problem with GM ]	modified starch

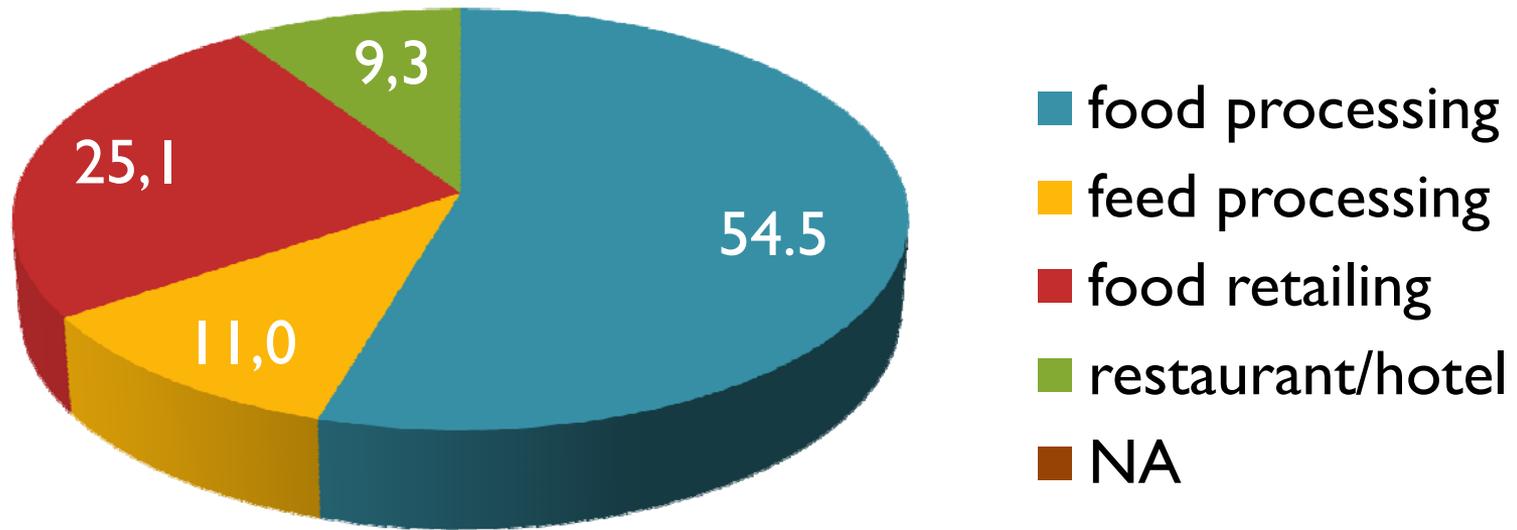
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## Survey on Food Industry on their Future Use of GMOs

- ▶ Investigator: STAFF (Society for Techno-Innovation of Ag, Forestry & Fisheries) commissioned by Japanese MAFF
- ▶ Period: December 2008- January 2009
- ▶ Number of Sample: 850
- ▶ Number of Respondent: 525
- ▶ Return Rate: 61.8%
- ▶ Method: Mail Survey

# Respondents of Food Industry Survey

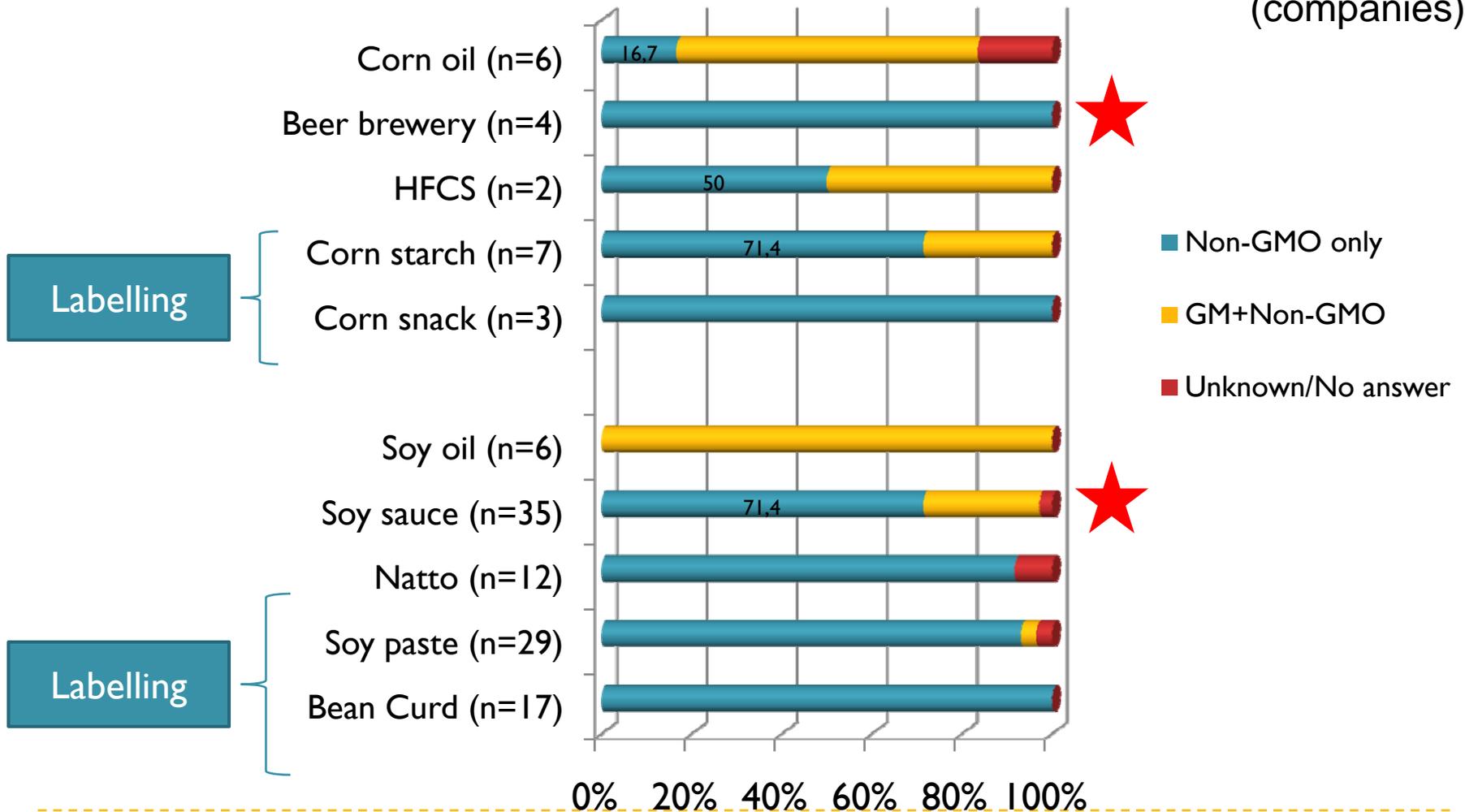
Total = 525



Source: STAFF (2009)

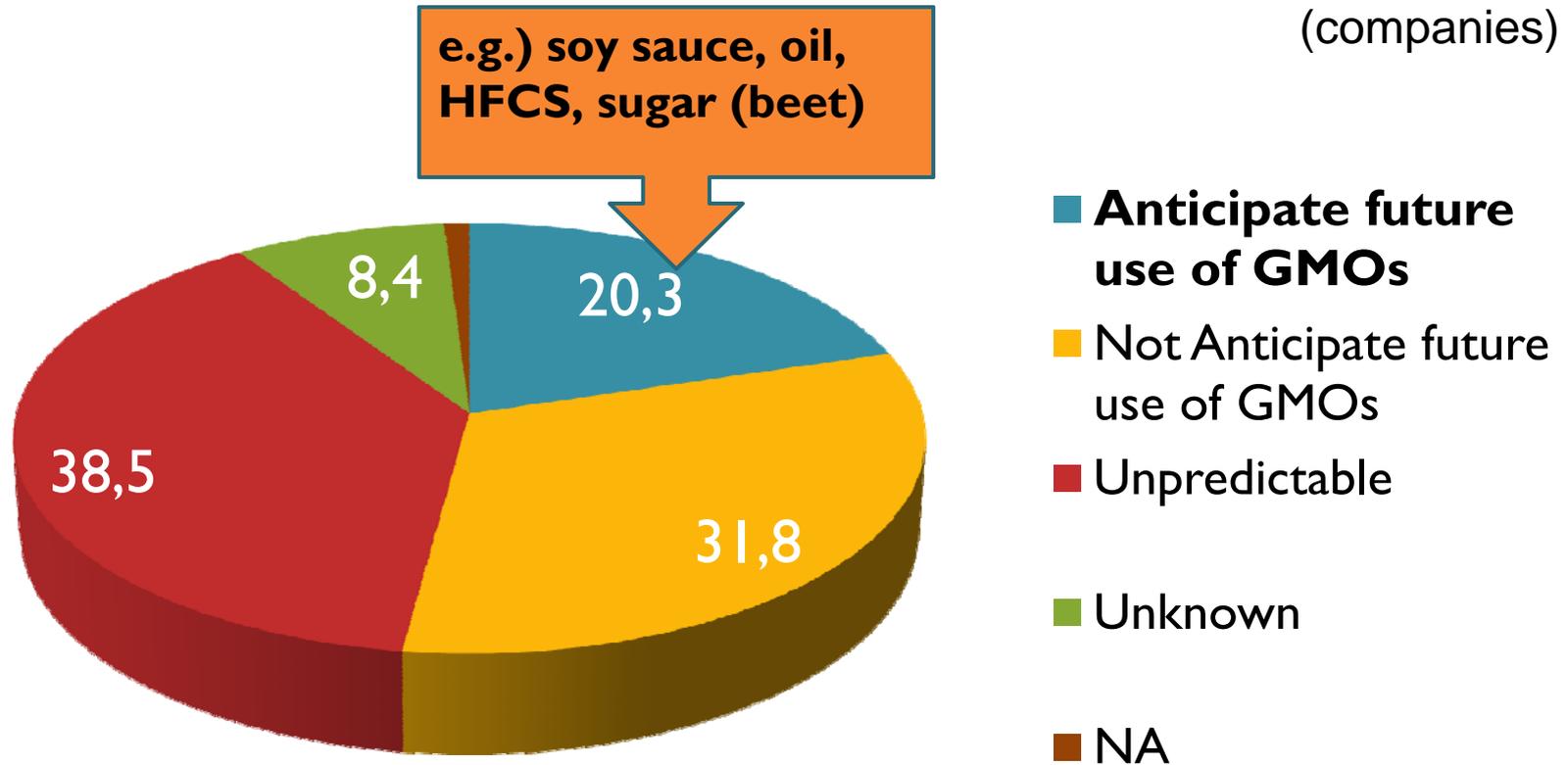
# Survey to Food Manufacturing Companies on their current use of GMOs

N=143  
(companies)



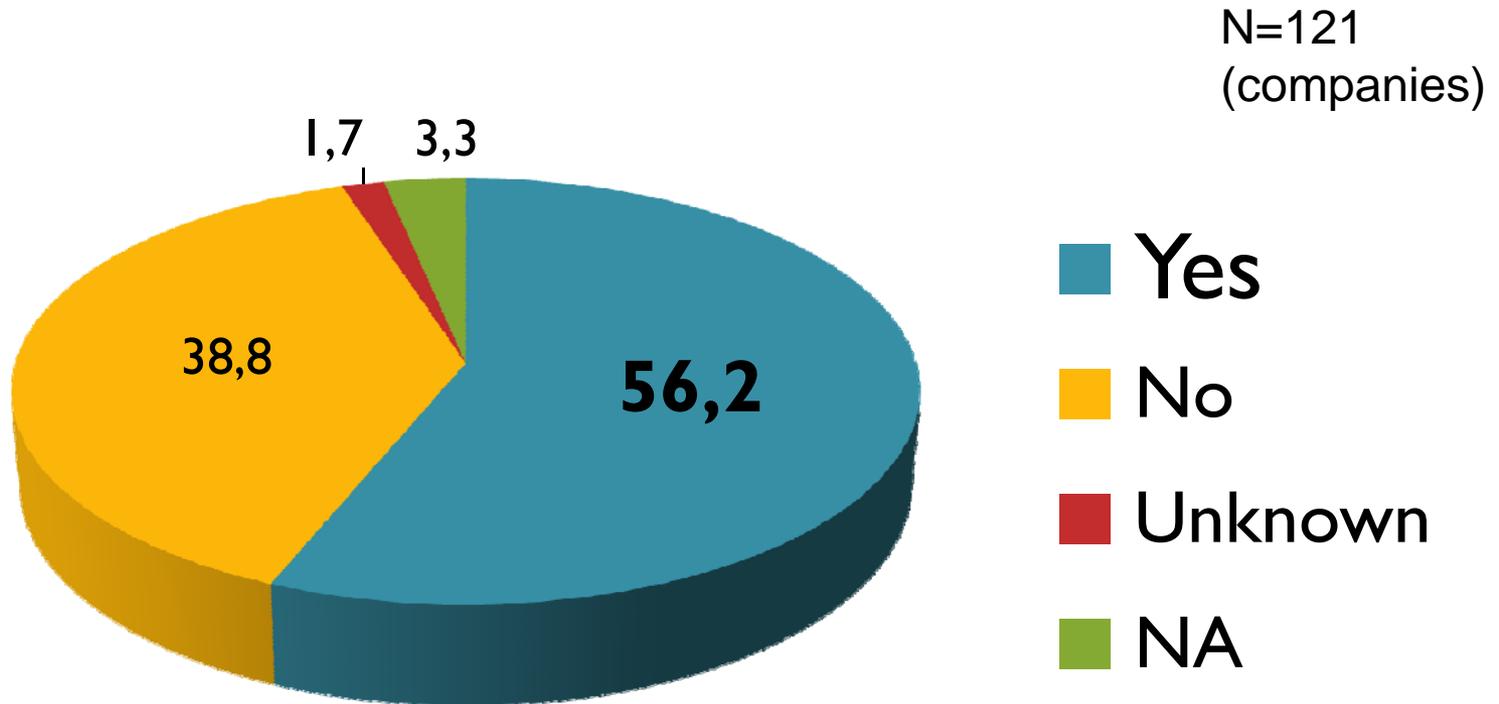
# Anticipation of Future Use of GMOs [food processors]

N=286  
(companies)



In contrast, corn snack, beer, corn flake, natto are items which are **least anticipated** to use GMOs as materials.

# Percentage of Food processing companies which employ voluntary labels showing “Use only Non-GMOs”



Voluntary labeling also seems to be encouraged by retailers because of their willingness to procure Non-GM labeled items .

# Conclusion

- ▶ Introduction of mandatory labeling has **created IP handling system** for corn and soybean, but this is totally **invisible from consumers'** viewpoint.
- ▶ Facing with soaring corn price, Japanese starch industry has **start to use GMOs for very limited items** as far as they are exempted from labeling.
- ▶ But it has **not yet strong enough** to change starch industry's attitude to use GMOs for items under mandatory labeling.
- ▶ I feel rather pessimistic to anticipate change of company's attitude in a short term. Because of strong conforming pressure within Japanese society. cf. next slide

# Social Conforming Pressure seems to prevent Japanese companies to use GMOs

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- ▶ **Very difficult to expect companies to use GMOs for food items which are to be labeled.** [After You!!]
- ▶ The strength of **conforming pressure** in Japanese society can be observed in other areas ...

- ▶ **Wearing Masks**

Major reason: “feel peer pressure to use masks even if doubting its effectiveness by themselves.” (recent survey)

- ▶ **BSE testing for all cattle**

Continue testing all cattle by prefectural governments in spite of termination of national policy.

Major reason: “As far as all other prefectures continue testing, our prefecture cannot stop it”. (recent survey)

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# Thank you very much for your attention!

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