

Japanese Technology Improvement to Compete in the Global Markets and Imports of Rice

-- Can they make it? --

Presentation 5

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- Today's Key Points -

- **Japan's rice imports: MA (Minimum Access imports)**
- **Current Production Costs**
- **Coping with the high costs by technology**
- **Japanese rice exports**
- **Perspectives for the future**



[Noguchi, N. \(2017\)](#)

<http://costep.open->

[ed.hokudai.ac.jp/like_hokudai/modules/xelfinder/index.php/view/6968/Associating.jpg](http://costep.open-ed.hokudai.ac.jp/like_hokudai/modules/xelfinder/index.php/view/6968/Associating.jpg)



障害物の検知と自動停止
Obstacle detection and automatic stopping

A new technology: by Kubota:

<https://www.youtube.com/watch?v=hHShTeDg4Ko>

Robot Tractor

A new technology: Fertilizer / herbicide flown with irrigation water



A new technology: Smart Water Controller



Saturated water management technology ...

Water-cost saving and greater yield!!!



Conventional

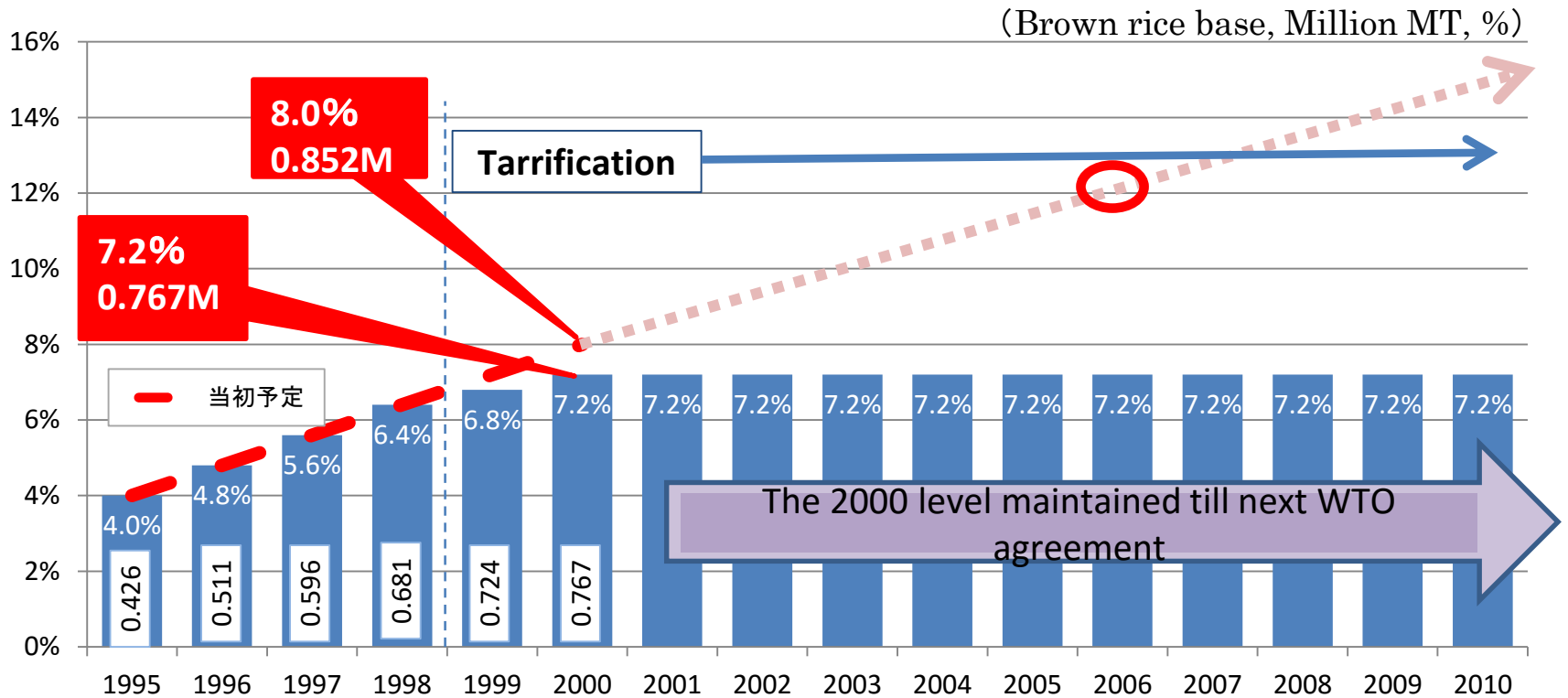


Saturated water management

After the heading, some 25 days of the saturated water management should increase yields by 6% without additional costs and better quality improved by 7 points (Matsue, et. al.,2017).

Rice imports in Japan . . .
Politically “eliminated” !!!

Fig. 2-1. MA Rice imports to Japan (1995-Current)



Source: MAFF "Information and data for rice" 2010

※Due to shift to tariffication, volume of MA rice reduced from the original 0.852 MMT to 0.767 MMT in 2000 and after.

※The base for the percentages is the average consumption during 1986-88.

Minimum Access (MA) rice

Tariffication, 1999 (with 351 yen/kg of tariff)

Tariff reduced to 341 yen/kg since 2000

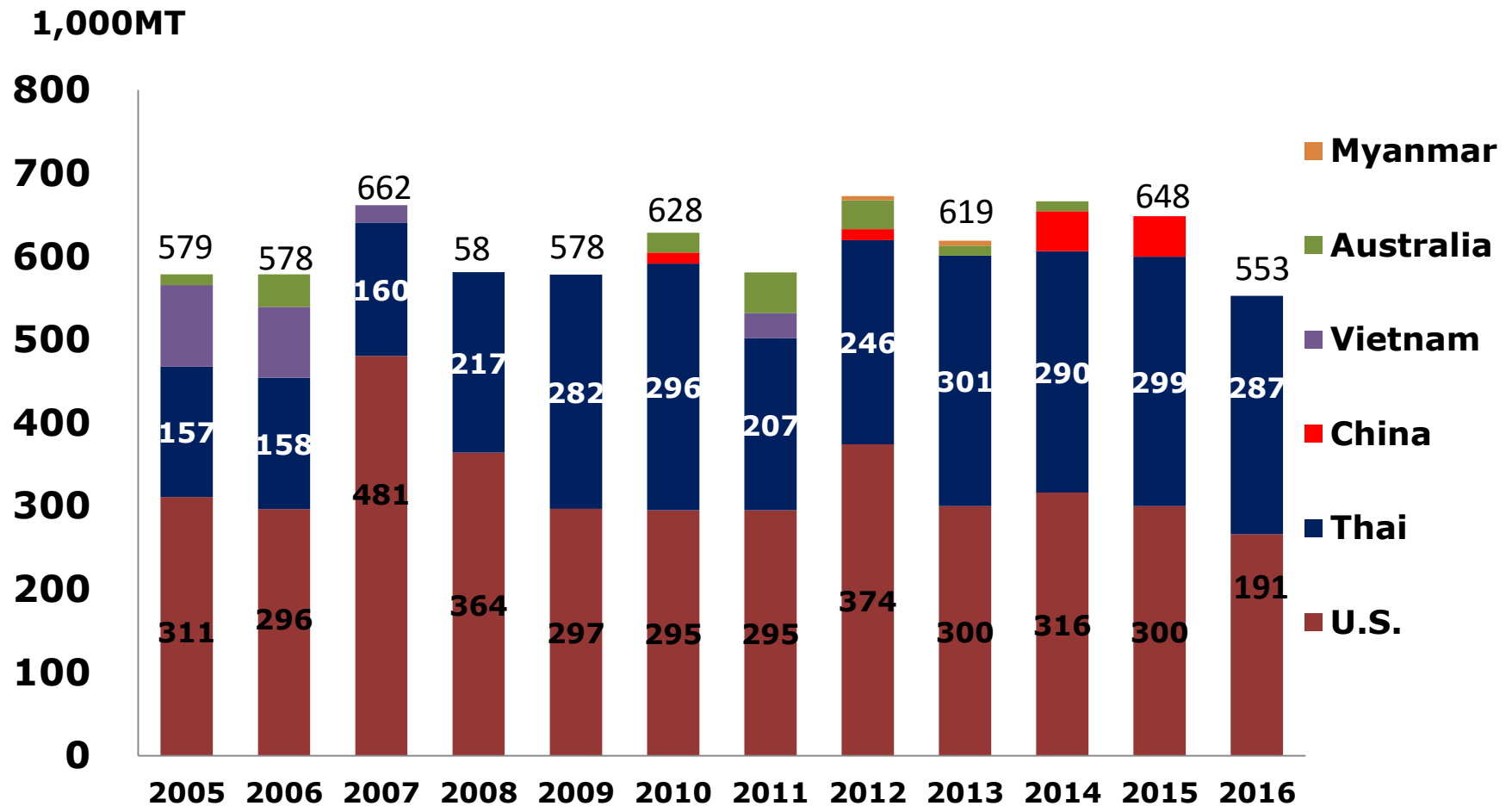
Government-controlled trade

US's share nearly half each year

Rice imports in Japan ...

- **Since 1995 at Uruguay Rnd.**
- **Currently 767,000 tons (brwn)**
- **MA (minimum access rice)**
 - **MAG rice (MA rice general)**
 - **For 667,000 tons**
 - **SBS rice (simultaneous-buy-and-sell rice)**
 - **For 100,000 tons**
- **Outside MA, ¥341 / kg (US\$3,000 / ton) of specific tariff: a prohibitive tariff.**

Imports of MA rice general, Japan ('05-'16)



Source: http://www.maff.go.jp/j/seisan/boueki/nyusatu/n_marice

As of March 3, 2017

SBS rice imports, Japan ('05-'16)

1,000 MT

120

100

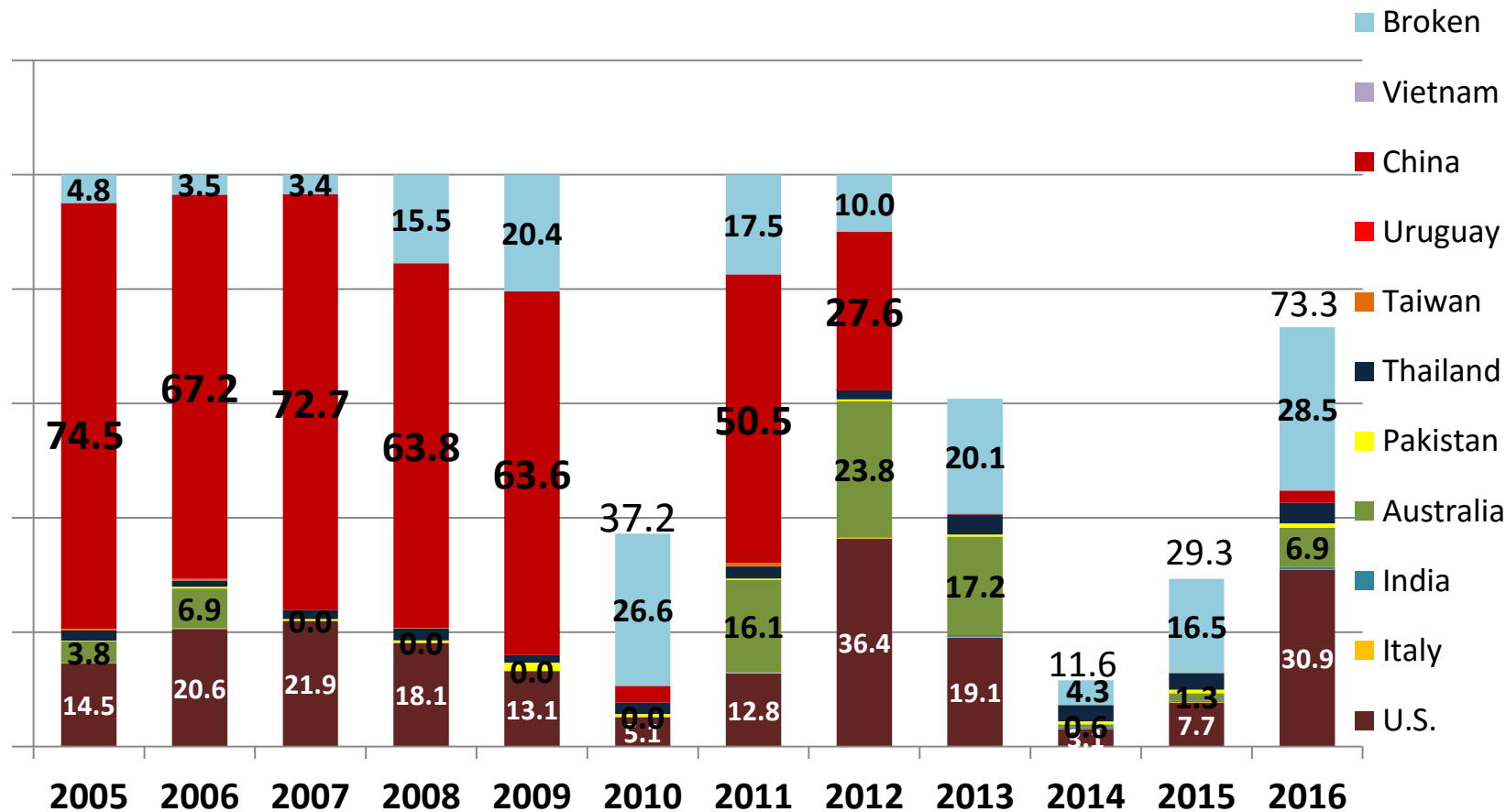
80

60

40

20

0

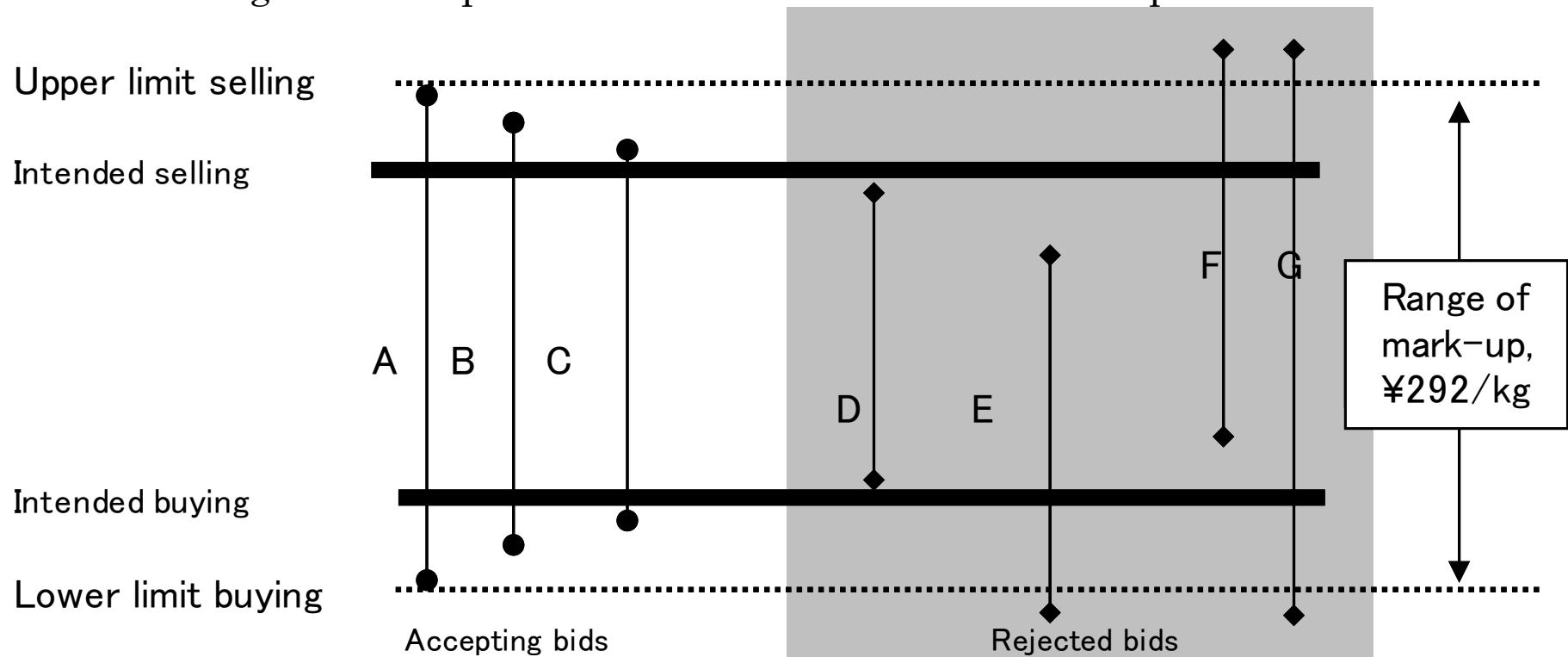


Source: MAFF (http://www.maff.go.jp/j/soushoku/boueki/nyusatu/n_sbsrice/)

**Milled rice basis

As of 03-Mar-2017

Fig. 2-6. Accepted bids for SBS rice auctions in Japan



Note: Valid bids are in order of A, B, and C. The bids, D,E,F,G, are all in valid due to out of range of intended or upper/lower limits.)

Source: MAFF

Table 2-3. Financial balance for the whole MA rice activities in Japan

(100 million yen)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	(2014)
Balance from buying and selling (A)	▲43	114	148	150	215	204	225	116	13	▲202	▲22	16	49	▲25	▲135	▲228	▲224	36	▲28	▲295
Original costs including buying	▲97	▲216	▲230	▲373	▲347	▲298	▲247	▲221	▲492	▲632	▲439	▲546	▲597	▲595	▲779	▲611	▲649	▲501	▲485	▲629
Buying	▲314	▲365	▲400	▲439	▲346	▲321	▲289	▲349	▲467	▲362	▲523	▲493	▲577	▲646	▲708	▲506	▲630	▲518	▲498	▲629
Selling	54	330	378	523	562	502	472	337	505	430	417	562	646	570	644	383	425	537	457	334
Management costs including stocks (B)	▲26	▲116	▲152	▲152	▲153	▲173	▲186	▲185	▲172	▲182	▲185	▲240	▲265	▲179	▲203	▲152	▲138	▲121	▲122	▲117
Costs for stocks	▲6	▲39	▲60	▲59	▲66	▲75	▲87	▲103	▲124	▲147	▲170	▲184	▲133	▲92	▲113	▲92	▲92	▲82	▲86	▲89
The final balance (A+B)	▲69	▲2	▲4	▲2	62	31	39	▲69	▲159	▲384	▲207	▲224	▲216	▲204	▲338	▲380	▲362	▲85	▲150	▲412

注1:「売上原価」は、「期首在庫棚卸高+買入額-期末在庫棚卸高」により算出。

注2:「売買損益」は、売却額から売上原価を差し引いたもの。

注3:「管理経費」は、保管料、運搬費等。

注4:平成11~19年度の損益は、利益が生じたことから、旧食糧管理特別会計法第6条に基づき国内米管理勘定へ備蓄損失補てん財源として繰り入れた。

注5:MA米の援助輸出に係るODA負担分は含まない。

Source:農林水産省(2015年3月):「米をめぐる関係資料」(P.85)

但し、2014年度は農林水産省(2016年11月):「米をめぐる関係資料」(p.91)

About \$400 Million
in red

Table 2-1. MA rice imports in Japan from individual exporting countries for MAG and SBS (1995-2014)

	(10,000MT, brown rice)																			
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
U.S.	19	23	29	31	34	36	36	36	36	36	36	36	36	43	36	36	36	36	36	36
Thailand	11	14	15	15	16	17	15	15	15	19	19	18	24	26	33	35	24	28	35	33
China	3	4	5	8	9	10	14	11	11	10	8	8	8	7	7	2	6	5	0	6
Australia	9	9	9	11	12	12	11	10	9	2	2	5	-	-	-	4	7	6	4	1
Others	1	1	1	3	2	2	1	4	5	10	12	10	1	1	1	1	4	1	2	1
TOTAL	43	51	60	68	72	77	77	77	76	77	77	77	70	77	77	77	77	77	77	77
(MAG)	42	49	54	55	59	63	66	71	65	66	66	65	59	66	66	73	66	66	70	75
(SBS)※	1	2	6	12	12	12	10	5	10	9	10	10	10	10	10	4	10	10	6	1

※SBS 輸入数量の単位は万実トン。

注1：各年度の輸入契約数量の推移。

注2：万実トンと万玄米トンのため合計は一致しない場合がある。

注3：ラウンドの関係で合計と内訳が一致しない場合がある。（単位：万玄米トン）

（参考）MA米以外で、枠外税率を支払って輸入されるコメの数量は、毎年0.1～0.2千トン程度

Source：農林水産省（2015年3月）：「コメをめぐる関係資料」（P. 62）

Table 2-2. Sales of MA rice in Japan (Crop years)

(10,000MT, brown rice)

Destinations for sales	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Table rice	-	3	4	10	10	9	10	4	6	8	10	11	10	8	8	1	8	10	4	134
Processing	12	28	19	28	24	27	24	21	31	25	25	36	37	21	21	15	15	19	15	443
Feeding	-	-	-	-	-	-	-	-	-	-	15	58	66	25	42	38	45	33	44	366
Foreign aid	-	12	34	23	26	21	23	20	22	17	13	8	12	20	14	9	19	10	4	307
Stocks	31	39	42	44	56	75	95	127	148	175	189	152	97	95	88	96	78	80	84	-

注1：R.Y（米穀年度）とは前年11月から当年10月までの1年間である

（例えば26R.Yであれば、平成25年11月から平成26年10月まで）。

注2：この他に、食用不適品として処理した4万トン、バイオエタノール用に販売した15万トンがある。

注3：ラウンドの関係で、内訳と合計が一致しない場合がある。

Source：農林水産省（2015年3月）：「コメをめぐる関係資料」（P.64）

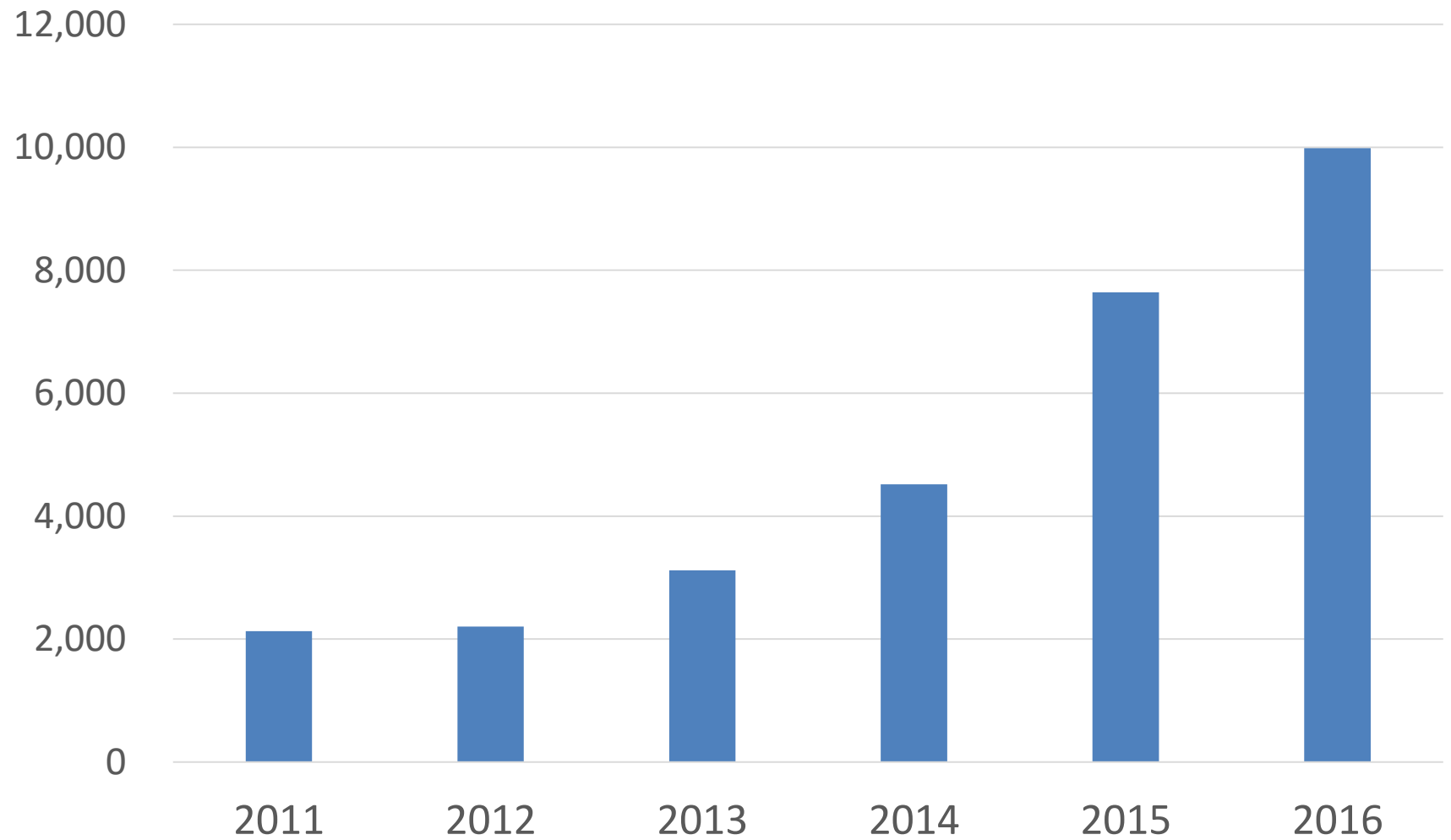
***Practically, imported rice are NOT
on the market for table rice, but
for feeding and processing ...
No consumer benefits...***

***How about exports of Japanese
rice . . .***

They are growing fast . . . , but . . .

Rice exports from Japan, commercial

Metric Tons



Commercial rice exports from Japan, 2011-16, MT, milled, million yen 商業用の米の輸出数量等の推移

	2011年		2012年		2013年		2014年		2015年		2016年		2015 Yen/ kg	2016 Yen/ kg	2016 USD/ kg
	MT トン	Million yen 百万円	MT トン	M. Yen 百万円	MT トン	M. Yen 百万円	MT トン	M. Yen 百万円	MT トン	M. Yen 百万円	MT トン	M. Yen 百万円			
Total 輸出合計	2,129 (+12%)	683 (-1%)	2,202 (+3%)	726 (+6%)	3,121 (+42%)	1,030 (+42%)	4,516 (+45%)	1,428 (+39%)	7,640 (+69%)	2,234 (+56%)	9,986 (+31%)	2,709 (+21%)	292	271	2.58
Hongkong	779	256	916	299	1,207	377	1,744	497	2,519	659	3,342 (+33%)	842 (+28%)	262	252	2.40
Singapore	598	183	668	208	961	300	1,295	371	1,850	463	2,350 (+27%)	539 (+16%)	250	229	2.18
Taiwan	183	66	154	50	168	74	407	155	753	268	910 (+21%)	321 (+20%)	356	353	3.36
China	0	0	34	14	46	19	157	76	568	291	375 (-34%)	163 (-44%)	512	435	4.14
U.S.	46	24	29	16	91	36	81	37	322	103	812 (+152%)	236 (+129%)	320	291	2.77
Australia	157	38	130	34	189	56	185	59	273	84	357 (+31%)	109 (+30%)	308	305	2.90
Thailand	13	6	19	8	21	9	43	15	208	37	395 (+90%)	71 (+93%)	178	180	1.71
Great Britain	57	17	48	18	58	23	112	41	189	60	326 (+72%)	98 (+64%)	317	301	2.87
Vietnam	1	1	3	1	16	5	4	2	142	15	74 (-48%)	16 (+8%)	106	216	2.06
Mongolia	4	1	7	2	73	14	51	10	134	24	198 (+46%)	33 (+37%)	179	167	1.59
Malaysia	22	6	10	3	6	2	49	15	124	41	167 (+35%)	45 (+10%)	331	269	2.56
Others	269	86	184	74	285	115	388	149	558	189	680 (+22%)	236 (+25%)	339	347	3.30

資料:財務省「貿易統計」(政府による食糧援助を除く。)

注1:()内は対前年同期増減率である。

注2:「その他」には、2016年については、インドネシア、カナダ、オランダなどが含まれる。

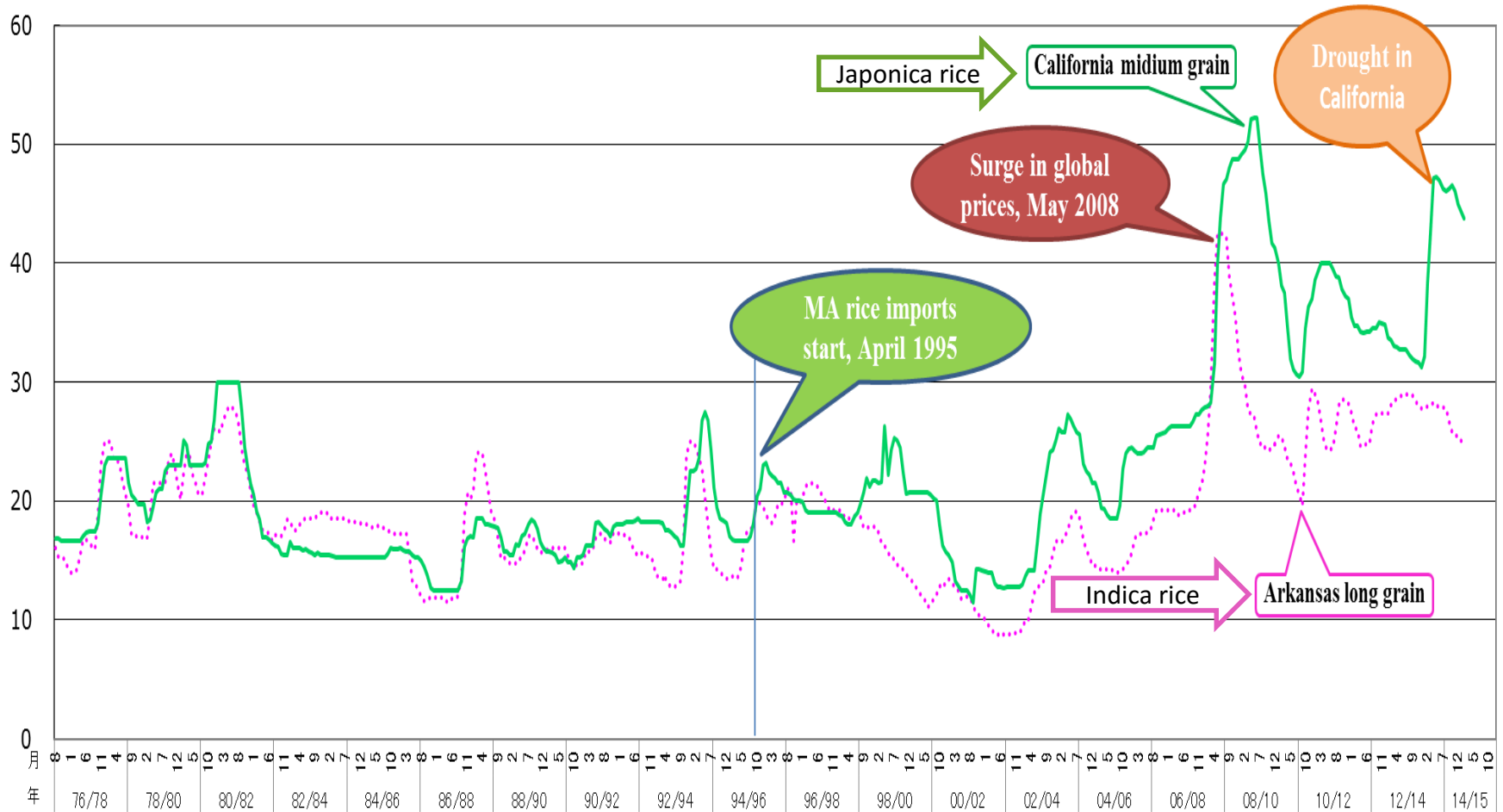
注3:数量1トン未満、金額20万円未満は計上されていない。

ソース: 農水省ホームページ: http://www.maff.go.jp/j/seisan/boueki/kome_yusyutu/attach/pdf/kanren-1.pdf (2017年7月13日閲覧)

105 yen / USD

Fig. 2. Price differences between California Medium grain and Arkansas long grain, FOB prices at mills
 (August 1976 - February 2015, milled/bagged, cwt)

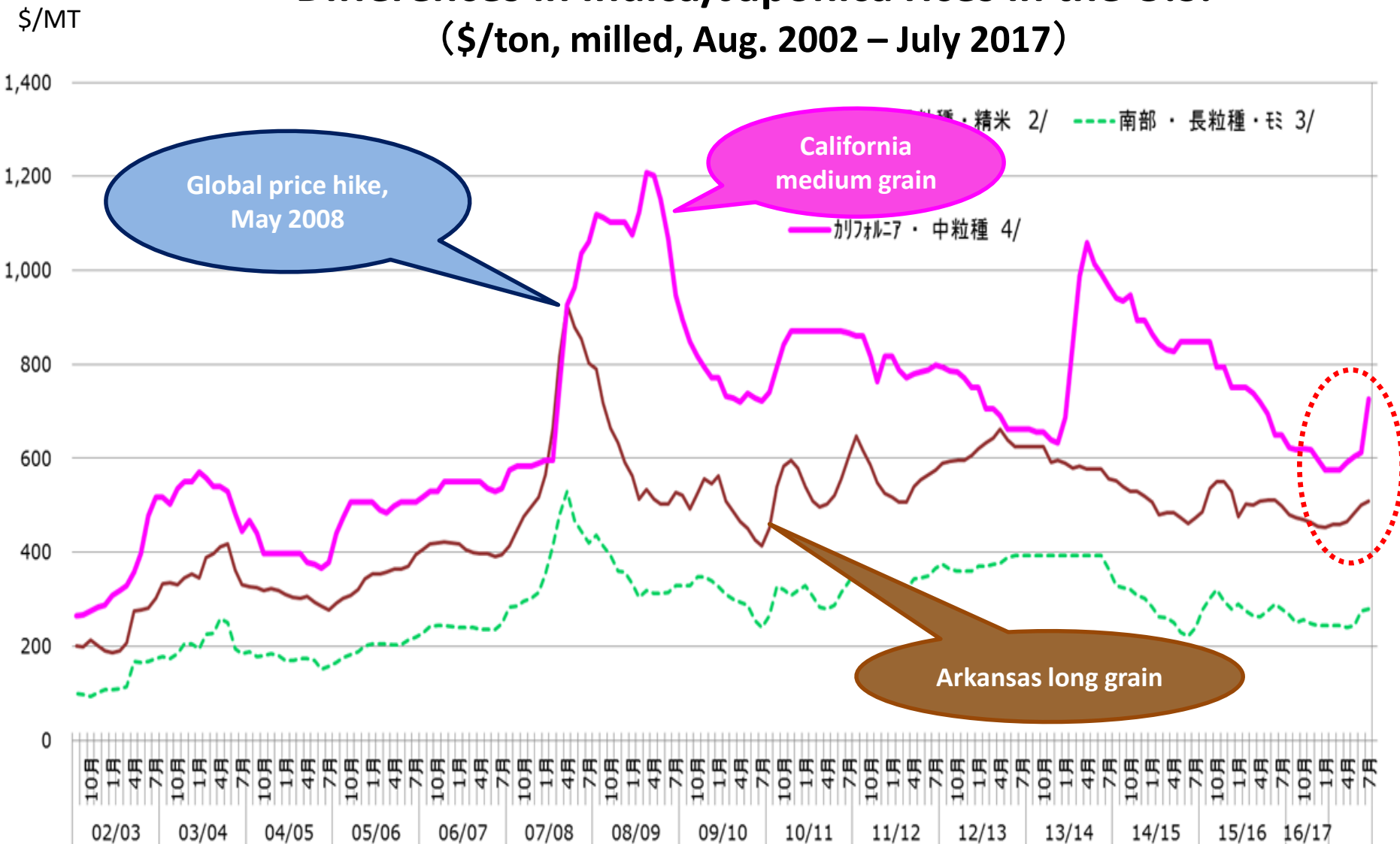
(\$/cwt, bagged)



Sources: USDA: Rice Yearbook : Dataset, USDA, Agricultural Marketing Service, and Rice Market News.
 Ito: <http://worldfood.apionet.or.jp/riceprice/riceprice1.htm> , June 2015

Differences in Indica/Japonica rices in the U.S.

(\$/ton, milled, Aug. 2002 – July 2017)



ソース：米国農務省(USDA):Rice Outlook, July 14, 2017.

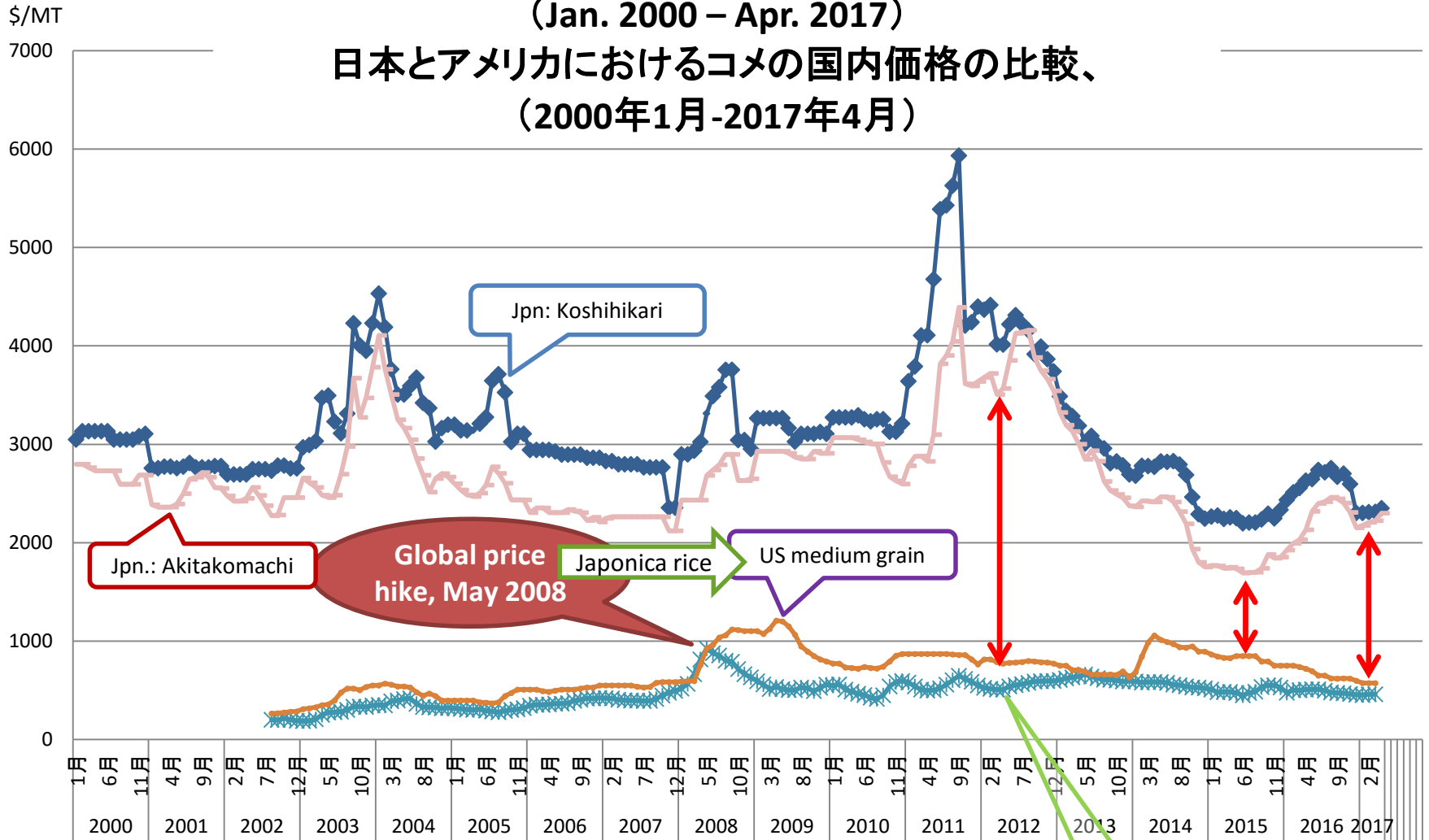
伊東正一:「コメ、コムギ、コーン及びダイズに関する国際価格」

(<http://worldfood.apionet.or.jp/pricechart/Indexriceprice.html>)(2017年7月15日閲覧)

Comparison of rice market prices between the U.S. and Japan

(Jan. 2000 – Apr. 2017)

日本とアメリカにおけるコメの国内価格の比較、
(2000年1月-2017年4月)

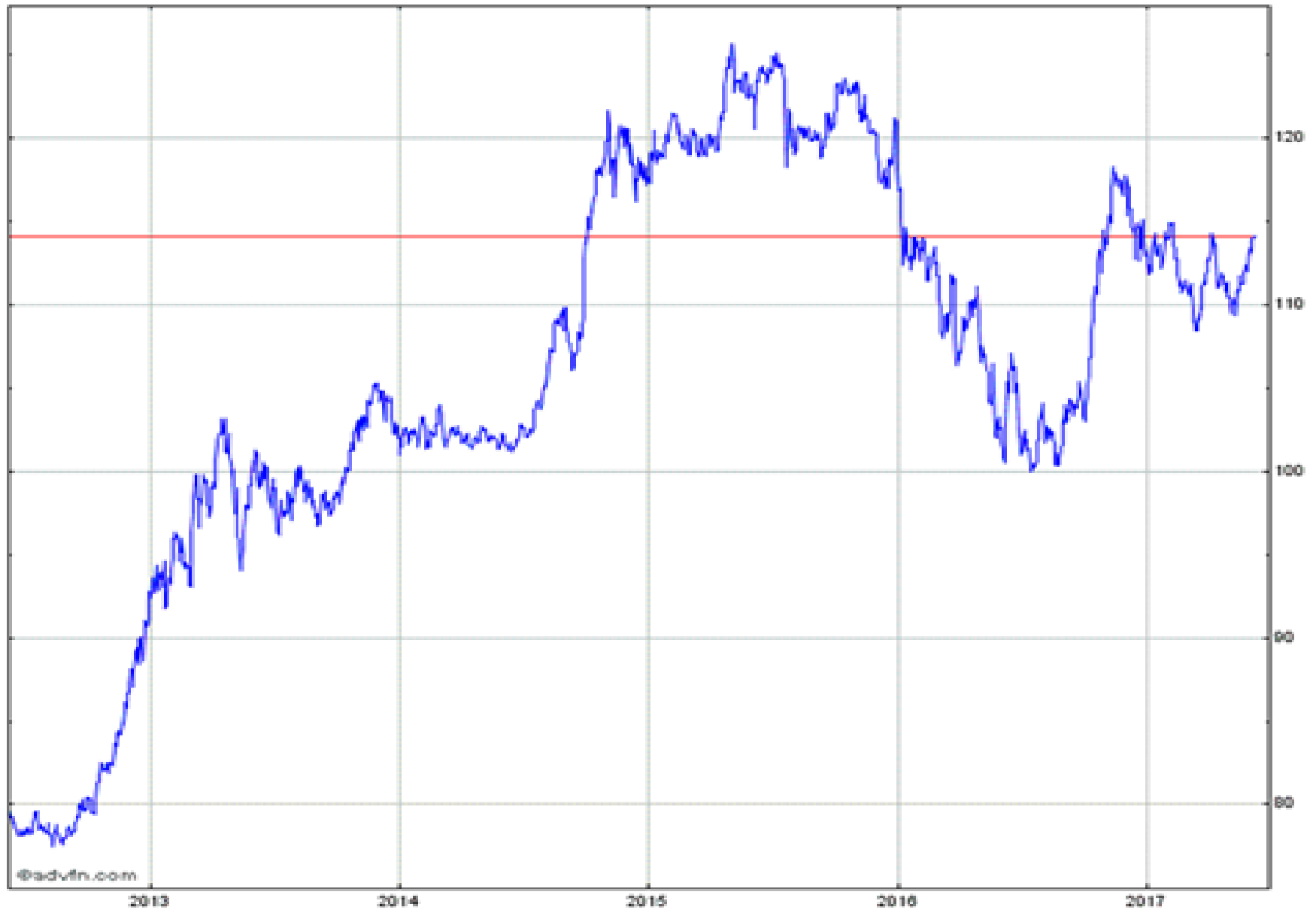


Sources: Nikkei Shimbun Journal and USDA

Exchange Rates(monthly averages) are from Mitsubishi UFJ Research and Consulting

Indica rice Southern long grain

Exchange rates, JPY/\$, daily, 2012-2017



ソース: <http://worldfood.apionet.or.jp/pricechart/Exchange%20chart-w.htm>

Impacts of weak Japanese yen

¥80/USD in 2011/12, ¥120/USD now...

- **from Outside Japan (from USD...)**
 - Used to pay \$1.00 for 80 yen product,
 - Now, get 40 yen back for your change
 - so, Japanese products cheaper by 33%
- **from Inside Japan (from JP¥...)**
 - Used to pay 80 yen for a \$1.00 product,
 - Now, have to pay 120 yen for the same prod.
 - So, 50% more expensive!!

Japanese rice exports are growing,...

However, it's only...

0.1% !

of domestic production.

It's long way to go.....

Now, rice is more expensive in the U.S. than Japan ...

- **Prices Japonica rice (Japanese varieties) in the US:**
 - Ranged from **\$25 - \$35 / 15 lbs. (6.8kg)**
 - **Namely \$37 - \$51 / 10kg**
 - **4,044 yen - 5,662 yen / 10kg (JP¥110/US\$)**
 - In Japan, **2,500 yen - 3,500 yen / 10kg**

Table 8. Retail prices of rice in Los Angeles, U.S. and Milano, Italy. August 2015, milled rice

Los Angeles	USD/15lbs (6.8kg)	<u>USD/10kg</u>	Jpn. Yen/10kg
Tamaki Gold	33.88	49.82	5,979
Nishiki (White, Brown)	17.88	26.29	3,155
Nozomi	26.98	39.68	4,761
Tamanishiki	25.88	38.06	4,567
Koshihikari	18.97	27.90	3,348
Matsuri	24.98	36.74	4,408
Kagayaki	29.98	44.09	5,291
Botan	12.98	19.09	2,291
<hr/>			
Milan, Italy		<u>USD/10kg</u>	Jpn. Yen/10kg
Nishiki		28.07	3,368
Tamaki CLASSIC		35.32	4,238
OKOMESAN		17.38	2,086
Riso Per Sushi		13.28	1,593
Yumenishiki		35.44	4,253
Biyori		16.76	2,012
Galloi Riso Per Sushi		33.75	4,050
Thai Jasmine rice		18.51	2,221

注1:米国の小売価格はロサンゼルス近郊のスーパー、イタリアの小売価格はミラノ市チャイナタウンのスーパーによる。

注2:為替レートは1ドル120円、1ユーロ135円として計算した。

*Japanese restaurants booming all
over the world ...*

Great markets for the japonica rice!

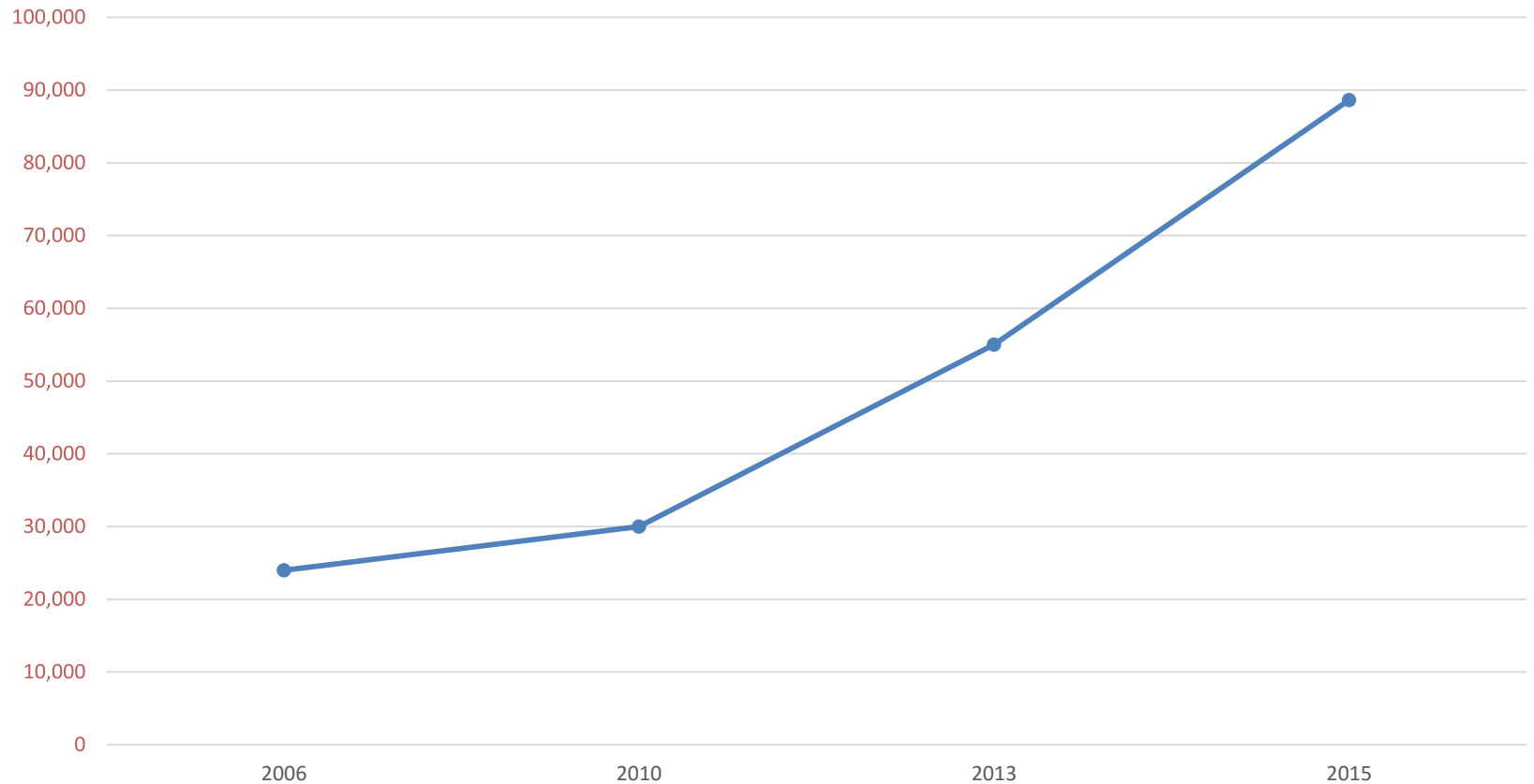
Table 1. Total number of Japanese restaurants in the world in 2006 – 2015.

	2006	2010	2013	2015
Numbers	24,000	30,000	55,000	88,650

Note: The numbers are approximated based on the reports from Japanese Embassies/Consulates

Source: MAFF, 2013

Fig. 1. Total number of Japanese restaurants in the world, 2006-15.



Number of Japanese restaurants by region in the world (Estimates)

	Asia	Russia	Europe	North America	Central/ South America	Middle East	Africa	Oceania	World Total
2006	10,000	1,000	2,500	14,000	1,500	100	50	1000	30,150
2013	27,000	1,200	5,500	17,000	2,900	250	150	700	54,700
2015	45,300	1,850	10,550	25,100	3,100	600	300	1,850	88,650

農林水産省外食産業室「日本食・食文化の海外普及について」2013年6月「海外における日本食レストランの数」2015年8月
 ソース: 齋藤文信「海外日本食レストランにおけるジャポニカ米利用」2015年11月



47%Up



63%Up

Table 3. The top 10 states for numbers of Japanese restaurants in the U.S. in 2005 and 2010.

Ranking	States	2005		2010		Growth rates
		Shares	Shares	Shares	Shares	
1	California	2,896	32%	3,963	28%	36.8%
2	New York	838	9%	1,439	10%	71.7%
3	Florida	588	6%	941	7%	60.0%
4	Washington	600	7%	827	6%	37.8%
5	New Joursey	284	3%	523	4%	84.2%
6	Texas	295	3%	494	3%	67.5%
7	Hawaii	325	4%	438	3%	34.8%
8	Georgia	210	2%	422	3%	101.0%
9	North Calorina	214	2%	431	3%	101.4%
10	Illinois	260	3%	377	3%	45.0%
Sub-total of the top 10 state		6,510	71%	9,855	70%	51.4%
The rest of the US		2,672	29%	4,274	30%	60.0%
Total		9,182	100%	14,129	100%	53.9%

*Indicate growth rates in numbers between 2010 and 2013.

Sources: JETRO, 2007 and 2010.

Japanese restaurants in the world...?

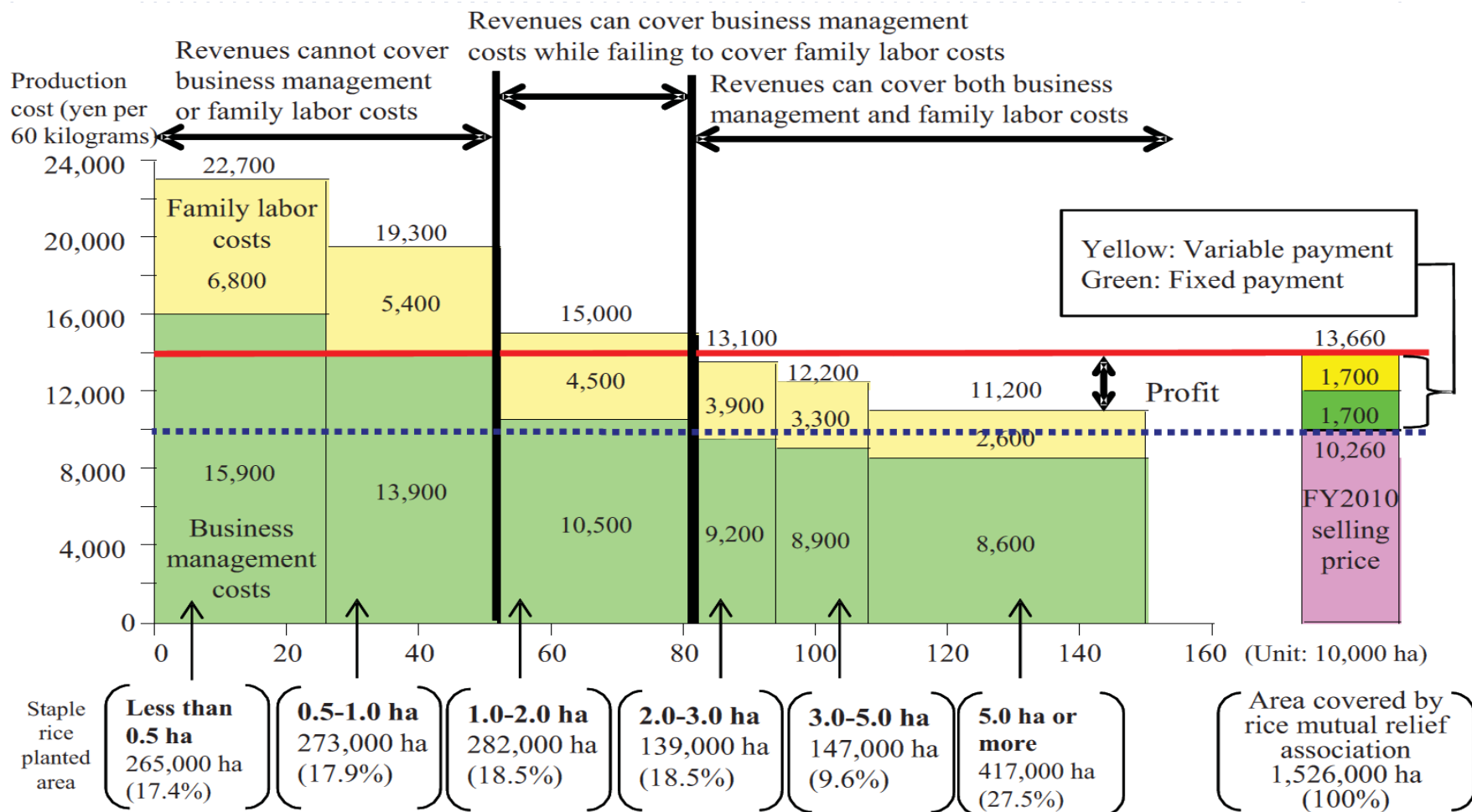
- *Increasing rate of growth in Japanese restaurants,*
- *Still increasing in the U.S.,*
- *The global boom will last next two decades...*
- *and More.....*
- *They are getting cheaper in Japan!!*

*Production costs of rice by size in
Japan ...*

The larger, the cheaper!

④ The implementation of the Income Support Direct Payment Program for Farmers has made some contributions to improving farming business performance, promoting the adjustment of rice supply and expanding production of rice for new uses.

(Rice farmer's business conditions by planted area group)



Source: MAFF

Note: Business management costs cover material procurement, interest payment, land rent and employment costs for rice production.

http://www.maff.go.jp/j/wpaper/w_maff/h23/pdf/e_all.pdf

citibank

MARUKAI MARKET

3832

3842

♿
PARKING
ONLY

NO PARKING

6CRF844

Structural changes for/in Japanese Agriculture

- **Global booming of Japanese food restaurants**
 - From **30,000** in **2010** to **55,000** in **2013**, an **80%** increase in **3** years (MAFF)
- **Increases in japonica rice prices**
 - Japonica rice from **\$650/MT** (milled) in **2013** to **\$850** in **2015**
 - Indica rice from **\$625/MT** (milled) in **2013** to **\$480** in **2015**
 - **Much higher prices of japonica over indica rice**
- **Depreciation of Japanese yen**
 - From **80** yen a dollar in **2012** to **120** yen in **2015**, and **110** yen **2017**
 - All Japanese products can be **33%** cheaper during **2012** and **2015**...
- **Plunge of rice market prices in Japan**
 - Akitakomachi rice from **16,000** yen a **60kg** (brown rice) in **April 2013** to **11,400** in **October 2014** through **July 2015**, now **14,700** in **August 2017**

In US dollars, from **\$3,700/MT** (milled) to **\$1,760**, a **52%** decline during **2013** and **2014**.
Now, **\$2,475**, **August 2017**, up **41%** since **2014**.
- **Change in policies: Freedom to grow rice in Japan**
 - No compulsory diversion program for rice starting in **2018**, with subsidies for other crops





Everyday Low Price
TAMAKI GOLD 15lb
15LB
\$33.88
Depth: 210



Everyday Low Price
SUKOYAKA GENMAI RICE 15lbs
15LB
\$29.88
Depth: 210

MARUKAI
NISHIKI PREMIUM BROWN RICE 15I
15LB
\$17.88
Depth: 210





おむすび 権米箱

Onmusubi GONBEI

家
Handmade in Bakery

夏祭り
8/15



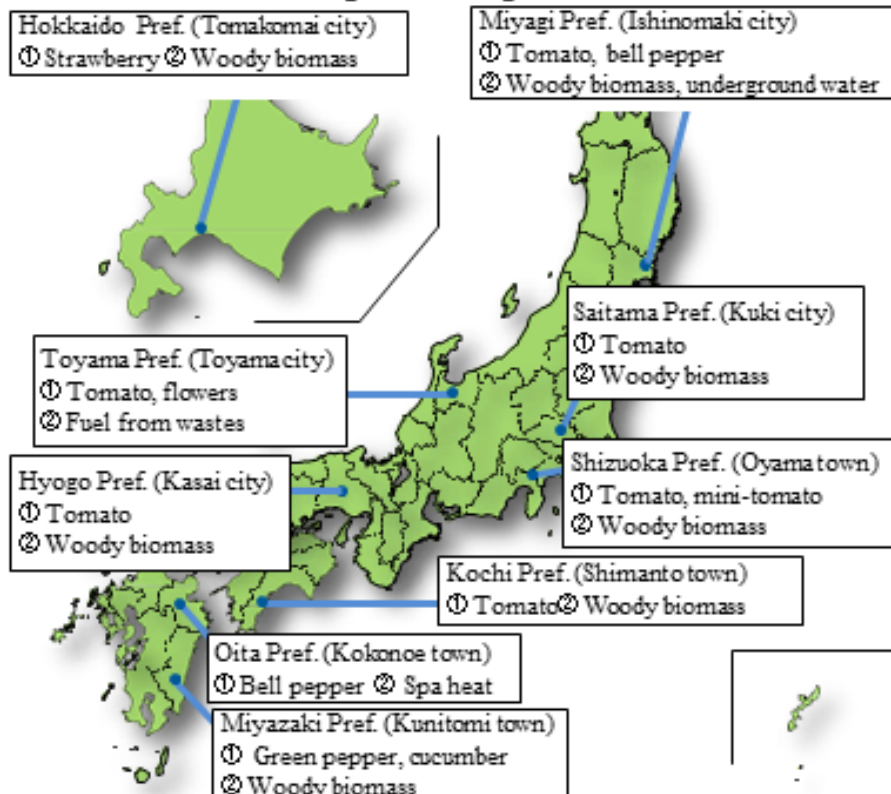
Now, Japanese agriculture . . .
Be export oriented!!

How about technology...?
Being advanced with ICT!!

3 Innovating production and distribution systems

- Promoting next-generation greenhouse horticulture to utilize woody biomass and other local energy resources and advanced technologies for reducing dependence on fossil fuels, increasing income and creating local jobs at locations where such energy resources are massively accumulated.
- In order to develop agriculture into a growth industry despite population aging, a shortage of new farmers and other difficult problems facing agriculture, Japan should promote new smart agriculture in which robot and information/communications technologies would be introduced for labor-saving, high-quality production.

Districts for implementation of support projects to accelerate introduction of next-generation greenhouse horticulture



Source: MAFF

Note: ① Crops for cultivation ② Local energy sources

New agricultural initiatives using robot and information/communications technologies

1. Developing autonomous-driving systems for tractors, etc.

Promoting the development of autonomous-driving systems for tractors and other agricultural machines to save farming labor and realize large-scale production. Promoting a study for demonstrating systems for cooperation between manned and unmanned machines and securing their safety to accelerate the development.



A system for cooperation between unmanned (left) and manned (right) machines

2. ICT used for efficient control of dispersed rice paddies

Nabehachi Nosan, a limited liability company in Yatomi city, Aichi Prefecture, has introduced ICT to efficiently manage dispersed rice paddies with a small number of workers, cutting seedling production costs by 25% and labor costs by 5%.



Computer terminals used in an office to integrally control operations

Measurement of plant growth



Getting status on plant(crop) growth from its leaf color
(chlorophyll)

Conventional measurement : leaf color chart (plate),
chlorophyll meter SPAD-502 by Konica Minolta



Leaf color chart (plate)



Alternative method by UAV possible?



Just like manual measurement with leaf color plate, is it possible to alternate the measuring device to UAV's camera?



Cutting production costs...

**Now 200 yen (\$1.82) per 1kg
(brown rice base)**

**Target: 140 yen (\$1.27) / kg
or less**

Implications to the Japanese agriculture ...

- **Great opportunity for exports:**
 - Strong demand with Japanese restaurant boom.
 - Competitive prices against foreign products.
- **Great opportunity to familiarize international trade:**
 - Chance to develop export strategies,
 - Chance to know the foreign markets,

Implications to the jaaponica rice producers outside Japan ...

- **Great opportunity for expansion of japonica rice:**
 - Still small markets in the world: Too fast increases in production can cause a plunge in market prices, however.
 - Seek higher quality and lower costs.
- **Grasp the domestic markets in own countries:**
 - Boom of Japanese restaurants are occurring in various countries including own home country.

Challenges for Japanese Agriculture

- **Still expensive for Japanese rice to export**
 - With quality and consistency, further cutting down costs is needed.
- **Rice exports increasing but still only at 0.1% of production in Japan**
 - Just started, a long way to go.
- **Structural changes going on in Japan**
 - Land consolidation, larger scale, firms oriented farming,
 - No more rice diversion program, in 2018,
 - Free to grow rice, possibly more production,
 - Market prices may decline.
- **Global winds for Japanese agriculture**
 - Booming Japanese food, restaurants all over the world,
 - More demand for rice from Japan,
- **Technology, ICT, in Japan**
 - Cutting production costs possible. Easier access to exports,
 - Institutional better team work for rice exports,



Let's eat more rice!!

Thank you for your attention!