

# U.S. Agricultural Exports and Strategies for Asian Markets

## - Topics Focused on Changes in Trade Environment and Grain Exports -

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### 1. Introduction

This paper focuses on the agricultural trade between the U.S. and Japan, especially on exports and imports of feed grains and oilseed crops and analyzes the current environments surrounding those exports and their historical changes. It also briefly discusses the future export strategies (for grains) of the U.S. toward Asian markets including the emerging Chinese market and possible measures to be taken by Japan.<sup>1</sup>

First, in order to identify major trends, we quickly look back on the great changes in agricultural trade between the U.S. and Japan over the course of time from the late 1980s. Next, typical challenges that are now faced by Japan as a result of those changes are specifically discussed. Lastly, in the light of

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<sup>1</sup> As the preliminary step of this paper, the author participated in the project named "Food 2040 – The Future of Food and Agriculture in East Asia" organized mainly by the U.S. Grains Council from 2011 to 2012. The final report of the project was released in Tokyo in April 2012. (The URL is <http://www.grainsip.org/Food%202040%20Report%20Japanese.pdf>) Thereafter, in the light of the analytical results and future prospects acquired in this project, "Workshop for Emerging Food Market in East Asia" was organized (chaired by Prof. Masayoshi Honma, University of Tokyo) was set up in July 2012. The author joined the workshop as a member. This paper was prepared based on the report presented by the author in the workshop (October 15, 2012) in consideration of the subsequent discussions made in the workshop.

this background, the author in the conclusion states his personal views of the paper on predictable U.S. strategies for the coming future and the directions of the agricultural industry in Japan in response to such strategies, particularly of those for grain imports.

## **2. Changes in the Global Trade Environment: What Have Changed in the U.S. Exports of Agricultural Products?**

In order to have a better prediction of the future several decades ahead, it is beneficial not to simply forecast the future but to go back to the past to get an overview of the changes occurred during the same time period. If we simply look at the future without dating back, we tend to feel tempted to accept the notion that the current situation is linearly leading to the future. Furthermore, it may be almost impossible for us to keep our consideration away from influence by the “reality” before our very eyes. We should remember the fact that, for example, the conclusion of the Cold War or the collapse of the Soviet Union, or, for more familiar example, the dissemination of tools such as Internet and cellular phones, are something that many people could not even imagine in the middle of 1980s, the uses of which are taken for granted now. Therefore, as to the psychological barrier of “apparent impossibility at the present moment” when forecasting the future, it is necessary to eliminate unconscious premises and prejudice from all perspectives including a way of thinking. Then, we are required to make a sober prediction of changes in society, technology and people’s mind.

The data of the period from 1989 to 2011 released by the United States Department of Agriculture (USDA) well indicate the changes in the U.S. agricultural exports which occurred for the past 25 years.<sup>2</sup>

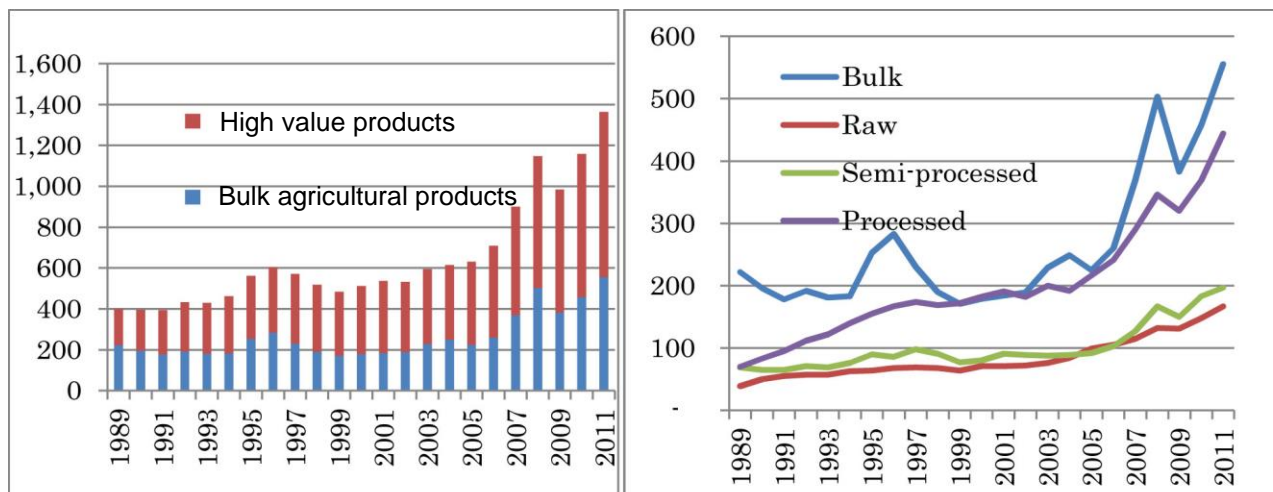
The value of agricultural exports which were about 40 billion dollars around 1990 increased to about 50 billion dollars in the late 1990s and about 60 billion dollars in the mid-2000s. In the late 2000s, the amount rose to 70 billion dollars in 2006, 90 billion dollars in 2007, 115 billion dollars in 2008 and 136 billion dollars in 2011 respectively. The amount has increased more than three times over the past 20 years. Figure 1 and 2 shows the changes in total export values of agricultural products, and the breakdowns by product at a different value-added level: Bulk, Raw, Semi-processed and Processed.

The value for each year increased or decreased by its own reason, but several important points are clarified by having the overview of the historical changes during this period.

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<sup>2</sup> The data used are all available in U.S. Agricultural Trade issued by the USDA-ERS. The URL is <http://www.ers.usda.gov/topics/international-markets-trade/us-agricultural-trade.aspx> (February 24, 2013)

Fig. 1 and Fig. 2 Changes in Export Values of Agricultural Products in the U.S. (1989 – 2011, in 100 million dollars)



Source: Created from USDA data

### 1) From Bulk to HVPs (High Value Products)

As a whole, the first turning point of the U.S. agricultural exports was around 1990. Historically, the majority of the U.S. agricultural exports were bulk products such as wheat, rice, coarse grains, oilseeds and tobacco. The U.S. has made the most of the large production areas and inexpensive labor force and has known to have been the most price competitive country in the world as an exporter of bulk agricultural products, at least in the past half the century. The most effective strengths of the U.S. bulk products, or the traditional agricultural products of the country, are its “consistent quality and inexpensive and massive transport availability,” and the representative products having the strengths were grains. This position, as the largest exporter of bulk agricultural products, was unshakable for a long time.<sup>3</sup>

In 1991, however, the exports of high value products (HVPs) exceeded those of bulk agricultural products for the first time. The exports of HVPs amounted to 21.6 billion dollars while the exports of bulk products were about 17.8 billion dollars.

Repeatedly, HVPs are divided into three different groups according to the level of process for the statistical purpose, that is, Raw, Semi-processed and Processed products.<sup>4</sup> At the present, after more than 20 years since 1991, the overall direction of the U.S. agricultural exports shows that HVPs remain dominant over bulk products. The total export value in 2011 is 136.4 billion dollars of which 80.8 billion dollars, or about 60% of the total agricultural exports is represented by HVPs. In other words, not bulk products but HVPs now occupies the central position in U.S. agricultural exports even in terms of export value. It is highly likely that this trend will continue. Processed products have the highest growth rate in

<sup>3</sup> This is true at least for the situation after the World War II. As to the situation before the war, the volume of the U.S. wheat exports in the late 1930s, for example, is less than the half those of Canada, Argentine or Australia. It is known that the U.S. was far behind other competitors in terms of export quantity for some periods.

<sup>4</sup> Of the agricultural products to be exported, seeds are unprocessed raw materials as well as HVPs. They are divided into two groups, one for agricultural use and the other for gardening use, and the both are HVPs. The value of seed exports in 2011 is 1.4 billion dollars, representing 2% of the total exports. According to the International Seed Federation (ISF), the value of the total U.S. seed exports in 2010 is broken down to 695 million dollars of crop seeds, 485 million dollar of vegetable seeds and 72 million dollars of flower seeds.

HVPs, and their export value increased from 8.3 billion dollars in 1990 to 44.4 billion dollars in 2011, an increase more than five times. This is one of the most important points to speculate the mid-long term U.S. intention to export agricultural products.

## 2) Top 3 Export Items Unchanged for 25 Years

Despite the substantial trend of the shift from bulk products to HVPs, when attention is focused on respective export items, the top three export items are unchanged for this period. In 1989, corn, wheat and soybeans ranked first, second and third, respectively, in export value, while, in 2011, soybeans, corn and wheat ranked first (17.5 billion dollars), second (13.7 billion dollars) and third (11.1 billion dollars), respectively. The ranking has slightly changed, but the top three items remain unchanged.

It should be noted, on the other hand, that the top three items accounted for more than half of the total value of agricultural exports, or 51.8% (16.4 billion dollars) in 1989 but the percentage dropped to 41.8% (42.3 billion dollars) in 2011, even though the value increased by 2.6 times during the same period. The grain prices have remained at historically high levels for past several years. Therefore, if the prices before 2008 are simply applied to soybeans, corn and wheat, the percentage of the top three items in the total agricultural export value would further shrink.<sup>5</sup>

**Table 1 Changes of Top 3 U.S. Export Items for Past 25 Years (in million dollars and %)**

	1989	1995	2000	2005	2011
1位 品目 金額	Corn 6,580	Corn 7,292	Soybeans 5,258	Soybeans 6,274	Soybeans 17,540
2位 品目 金額	Wheat 5,868	Wheat 5,448	Corn 4,469	Corn 4,789	Corn 13,676
3位 品目 金額	Soybeans 3,942	Soybeans 5,398	Wheat 3,354	Wheat 4,357	Wheat 11,127
1-3位小計 (A)	16,390	18,138	13,081	15,420	42,343
Top 25位 合計(B)	31,633	42,051	36,025	44,501	101,401
(A)/(B)	51.8	43.1	36.3	34.7	41.8

Source: Created from USDA data

In sum, grains and oilseeds continue to account for a large part of the U.S. agricultural export, however, these traditional bulk products steadily decrease their shares. It is important to note that the recent higher grain prices make such reality, vague. We need to clearly recognize the difference between the reality in trade and the impressions that are unconsciously left in our mind over a long period of time.

<sup>5</sup> However, a decrease in grain prices does not necessarily mean a decline in export prices because storage and transportation fees, handling fee, foreign exchange, etc. incurred in an export country are also included in an export price and vary by different factors.

### **3) Changes of Trade Partners: Expansion of the NAFTA and Decline of Status of Japan and the EU**

Since the 2000s, various arguments were raised concerning the North American Free Trade Agreement (NAFTA, enacted in 1994), but the agreement began to steadily exert its effect in visible ways over the decade. As a result, although Japan and the EU had been the first and second largest importers of the U.S. agricultural products for a long time, they were replaced by Canada and Mexico which were both the members of the NAFTA. Canada overtook Japan and came in the second place in 2002, and Mexico also overtook Japan in 2005.

As to the agricultural export values in 2011 by nation or region, the top three countries, Canada, the largest importer (19 billion dollars), China, the second (18.9 billion dollars) and Mexico, the third (18.4 billion dollars) are at almost similar level. Japan ranked fourth (14.1 billion dollars) and its import value is about 5 billion dollars larger than that of the EU, which is the fifth (9.6 billion dollars) largest importer. The export value to Korea, the sixth largest importer (7 billion dollars) is less than half the value exported to Japan, and other countries are far behind Korea.

Stated in another way, the current largest importers of the U.S. agricultural products are Canada, Mexico and China, followed by Japan and the EU which are both longtime trade partners but have dropped their status these days.

Then, take a look at this situation from the standpoint of Japan. Japan had been the largest consumer of the U.S. grains and retained its stable purchasing power over an extended period of time, however this has been overtaken by Canada, Mexico and China for the past decade. Japan's main domestic factor during this period was the economic downturn that continued for a long time from the early 1990s to the early 2000s, known as the "Lost Decade," and could not fully recovered from the stagnation. Anyhow, it is clear for the U.S. that Japan's status is sinking.

We should fully understand that the position of Japan as an importer of the U.S. agricultural products slipped from the single largest partner to just one of the major partners.

**Table 2. Changes of Japan's Position in the U.S. Agricultural Exports**  
(Country; value in 100 million dollars)

		1989	1995	2000	2005	2011
1st	Item Value	Japan 8,193	Japan 11,149	Japan 9,292	Canada 10,618	Canada 18,996
2nd	Item Value	EU-27 7,043	EU-27 8,789	Canada 7,643	Mexico 9,429	China 18,855
3rd	Item Value	Mexico 2,735	Canada 5,796	EU-27 6,515	Japan 7,931	Mexico 18,367
4th	Item Value	South Korea 2,597	South Korea 3,742	Mexico 6,410	EU-27 7,052	Japan 14,069
Total of top 15 items (B)		40,028	56,206	51,265	63,182	136,345
Japan / (B)		20.5	19.8	18.1	12.6	10.3

Source: Created from USDA data

As observed above, the three major points regarding the recognizable changes in the U.S. agricultural exports for the past 25 years are : 1) the trend of the product shift from bulk to HVPs, 2) the unchanged top three items (soybeans, corn and wheat) in terms of export value, and 3) the changes in the position as importers of the U.S. agricultural products.

Furthermore, attention should be also paid to additional two points: 4) the emergence of Asian countries as new trade partners, especially China, and 5) the emergence of countries in South America that are tough competitors and grain suppliers who can take over the role of the U.S. (dramatic increases in soybean production in Argentina and Brazil).

The estimated soybean production for 2012/13 is 83.5 million tons in Brazil and 53 million tons in Argentina. The total production of these two countries substantially exceeds that of the U.S., 82.06 million tons. China alone imports as much as 63 million tons, two thirds of the world soybean import, 96.55 million tons.<sup>6</sup>

In consideration of these changes in the global trade environment as stated above, the following section briefly discusses what Japan should give attention to when importing grains and oilseeds from the U.S. in the future.

### 3. "Safety" and "Security" in Relation to Grain Imports from the U.S.

In recent years, "food safety" and "food security" draw increasing attention throughout the world, and Japan is not the exception. The former is usually translated to "Shoku-no-azen" and the latter is to

<sup>6</sup> All the figures used here are from the data released by the USDA in February 2013. EU-27, the second largest soybean importer imported 11.3 million tons, representing less than 20 % of soybean imports of China. It is not too much to say that the world's soybeans are dedicated to imports to China these days.

“Shokuryo-anzen-hosho” in Japanese. More specifically, the former means safety mainly in the context of natural scientific fields including hygienic issues, while the latter is often used in the international community to represent the issues related to poverty and starvation in developing countries.

Generally, when Western people hear the term of “food security”, the image that comes to their mind first is often something related to poverty and starvation in developing countries.<sup>7</sup> As a matter of fact, not many people in Japan, the third biggest economic and advanced nation, may understand the presence of serious potential issues related to “food security.” Therefore, this paper takes up several issues that are to be faced by Japan in the future concerning the grain imports from the U.S. with the perspectives of both “food safety” and “food security.”

### **1) Grain Imports from the U.S. and “Food Safety”**

If the targets of observation are limited to imports of grains and oilseeds, it is relatively easy to narrow down the focus on issues of “food safety” because it is one of the major concerns of consumers and is closely linked with our day-to-day living. Apart from general safety for food, this sub-section briefly addresses genetically modified (GM) crops as a representative issue that we should keep in mind when thinking of the safety of imported grains. If we would say without fear of being mistaken, this is the issue related to the basic stance of a country, organization or its people; to what extent they would rely on the science-based safety evaluation. In this sense, “food safety” is closely related to science.

Japan imports about 30 million tons of grains a year, and about half of the total imports are presumably GM crops. About 15 to 16 million tons of corn is continuously imported every year for livestock feeds and industrial raw materials mainly from the U.S. As the proportion of the planted areas of GM varieties in the U.S. has already reached to 88% (national average) as of 2012, we should understand that GM varieties account for about 90% of the imported corn. Other items such as soybeans and rapeseeds are also at the similar level. The reasonable estimation based on this situation would be that about half of grains that we import have been already shifted to GM varieties.<sup>8</sup> In other words, this means that we have already established the “co-existence relationship” with GM crops in a different sense from the EU.

Then, let’s look at the domestic production of GM crops in Japan. The safety assessment of genetically modified organisms (GMOs) including grains in Japan is governed by the basic regulatory framework which is consistent with the international regulations and standards. This is comprised of major three regulations, that is, so-called Cartagena Act<sup>9</sup>, Food Sanitation Law and Act on Safety Assurance and Quality Improvement of Feeds. Food, feed and flowers for ornamental use are examined by authorities concerned in their respective standpoints.

As of this writing (February 2013), Japan has already approved 96 types of GM crops of six items:

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<sup>7</sup> For example, USDA issued the research report titled “*International Food Security Assessment, 2012-22*” in July 2012, which does not understandably include Japan as an investigation object.

<sup>8</sup> Corn imports from Brazil and other countries sharply increased in 2012 due to drought in the U.S. It is said that two thirds of corn produced in Brazil is already of genetically modified varieties. In 2012, for example, Japan imported 1.84 million tons of corn from Brazil, of which 1.23 million tons of corn is assumed to be of genetically modified varieties.

<sup>9</sup> The formal name is “Law Concerning the Conservation and Sustainable Use of Biological Diversity through Regulations on the Use of Living Modified Organisms” issued in June 2003, and enacted on February 19, 2004.

corn, rapeseed, cotton, soybean, alfalfa and sugar beet through formal safety assessment in the three areas of food, feed and environment in accordance with the laws. So far, however, no single item is commercially grown in Japan.<sup>10</sup> In addition, some local governments have extremely strict regulations applicable to GM varieties. In other words, Japan imports a massive amount of GM crops, actually benefits from them and implements official safety assessment, but GM crops have not been commercially produced here. This very strange situation still persists in Japan.

It is said that an investment of 100 million dollars or more is usually required to develop a GM crop until its commercialization. This causes trouble to developers of GM crops in recovering their investments and also keeps them away from huge market opportunities which otherwise might be open to them when they develop new products. There may be some emotional resistance because the majority of the developers are of foreign-owned companies, but it seems necessary to review this issue from the viewpoint of quite a few producers and consumers who would otherwise have benefited much from the dissemination of new products.

The delay in approval occurs also in EU. The European Association for Bio-industries announced that the total undue delay would correspond to 44.6 years in comparison to cases where timely approval is given within the originally scheduled period for each product item.<sup>11</sup> A delay of more than 40 years in development of scientific technologies is almost catastrophic and, furthermore, discourages many corporations and researchers who intend to establish themselves in this field. There are quite a few cases where developers move their research and development centers from the EU to the U.S. and researchers leave the EU. The troubles plaguing European authorities are no longer someone else's affair.

As of the end of January 2013, the total number of applications to the authorities concerned exceeds 200 in Japan. The developers and applicants are not only foreign affiliated companies but also Japanese companies. It seems that more applications will be filed in the future in line with the advancement of research and development. As the development competition is intensified, this is becoming a big issue. A detection limit of GM crops is endlessly pursued, as they are seized by the obsessive idea of zero tolerance, even for the product that has been already examined and declared scientifically safe, and furthermore, voluntary restraint is encouraged. In these trends, tremendous time, resources and efforts are required. We need to seriously think about what or where this direction leads to.

## **2) Grain Imports from the U.S. and "Food Security"**

The representative issues of "food security" are 1) competition between food and biofuels, and 2) export restrictions in times of emergency. In a more broad sense, the issue of securing agricultural land abroad is also included. In addition, the most basic issue is, 3) recognition of the fact that several different industries including the livestock industry in Japan depend on the "invisible infrastructure" which has

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<sup>10</sup> Approval is also delayed in the EU. There has been a significant delay in approval procedures after the European Food Safety Authority (EFSA) carries out an examination and submits its comment. This is recognized a major issue also in the EU. A longer time is taken to approve newly developed GM crops even in the U.S., and this may be a global trend.

<sup>11</sup> EuropaBio, "44 years of delays in the EU Approval of GM Products", November 2012. The URL is [http://www.europabio.org/sites/default/files/position/44\\_years\\_of\\_delays\\_in\\_the\\_eu\\_approval\\_of\\_gm\\_products\\_europabio.pdf](http://www.europabio.org/sites/default/files/position/44_years_of_delays_in_the_eu_approval_of_gm_products_europabio.pdf) (February 24, 2013)



constructed between Japan and the U.S.

### **1) Competition between Food and Biofuels**

As to the first issue, the competition between food and biofuels is looked at with the data announced by the USDA in February 2013. The U.S. corn production for 2012/2013 crop year is 10,780 million bushels, down 13% from the previous year with a substantial decrease in yield from 147.2 bushels last year to 123.4 bushels due to weather. At the same time, the data on average farm price for this season was announced, which shows a significant increase to 6.75 - 7.65 dollars/bu from 5.40 - 6.40 dollars/bu in July last year.

The point is that, according to the USDA's report, while the domestic demand for corn for food, seed and industrial use is 5.887 billion bushels, a small decrease, the demand for ethanol production continues to account for a large proportion of the total domestic demand. Special attention should be paid to the fact that the demand for ethanol production is 4.5 billion bushels and represents 40% of the corn production which is said to have suffered the worst record of damage from drought for the past 50 years.

In the first place, fuel ethanol drew attention as a clean energy to raise the octane number of gasoline and also as air pollution abatement measure after the use of MTBE (methyl tertiary butyl ether) was banned throughout the U.S. Since then, from the perspective of security, ethanol contributed to the reduction in the dependence on the Middle Eastern crude oil, and provided a stable grain market and created new jobs for corn producers in the Mid-West. In recognition of those several advantages of ethanol, under the Energy Policy Act of 2005, the government established the Renewable Fuel Standard (RFS) that mandates the use of renewable fuel and intensively supports ethanol production and related industries using the legally binding program.

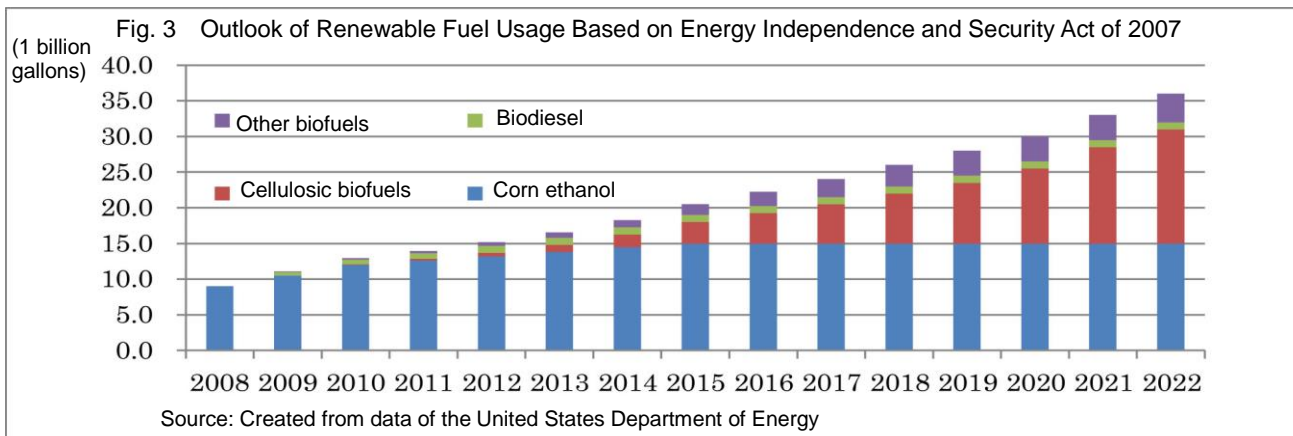
Then, the new RFS by the Energy Independence and Security Act of 2007 (EISA) sets a mandatory blend level for renewable fuels in conventional gasoline for each year from 2008 to 2022. The ethanol blend mandate is 9 billion gallons in 2008, 13.2 billion gallons in 2012, 13.8 billion gallons in 2013, 14.4 billion gallons in 2014 and 15.0 billion gallons in 2015 and thereafter.<sup>12</sup>

Figure 3 shows the annual mandate in a chart. Although, at present, corn ethanol almost achieves its goal, cellulosic biomass that are required to be used by 2022 are not yet virtually commercialized, which is discussed below.

As to the ethanol from corn, a bushel of corn is said to generally produce 2.8 gallons of ethanol fuel, which varies depending on the technical level of each plant. In other words, a simple calculation reveals that in 2012 the production of 13.2 billion gallons of ethanol requires 4.7 billion bushels of corn. The production of 15 billion gallons of ethanol requires 5.4 billion bushels of corn. Since this fixed demand is based on the legally binding program and not affected by weather and/or actual demand trends, it is likely to pose a problem in various phases in the future.

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<sup>12</sup> EISA set 2012 RFS total mandate to be 15.2 billion ethanol-equivalent gallons. That year, the mandate volume of the biomass-based fuel, that is, ethanol made from corn is 15 billion gallons, and the remaining 2 billion is allocated to advanced fuels. The latter is cellulosic biofuel of which development and use will be further promoted (only about 10 million gallons in 2012 but to be increased to 16 billion gallons in 2022, higher level than corn ethanol). The RFS total for 2022 is 36 billion gallons. See the website of the Environmental Protection Agency for more information of the RFS. The URL is <http://www.epa.gov/otaq/fuels/renewablefuels/index.htm> (February 24, 2013)



As of February 2013, 211 ethanol plants were established in 29 states in the U.S., and their total production capability is 14,712 million gallons, 2.7 times greater than 5 years ago.<sup>13</sup> At present, the U.S. is the largest ethanol producer in the world that has an annual production of 13,900 million gallons (2011), and, among all plants, only about 10 ethanol plants “do not” produce ethanol from corn. In other words, almost all of the ethanol produced in the plants is derived from corn. This is why the issue of “food or fuels” is argued as a real and imminent challenge.

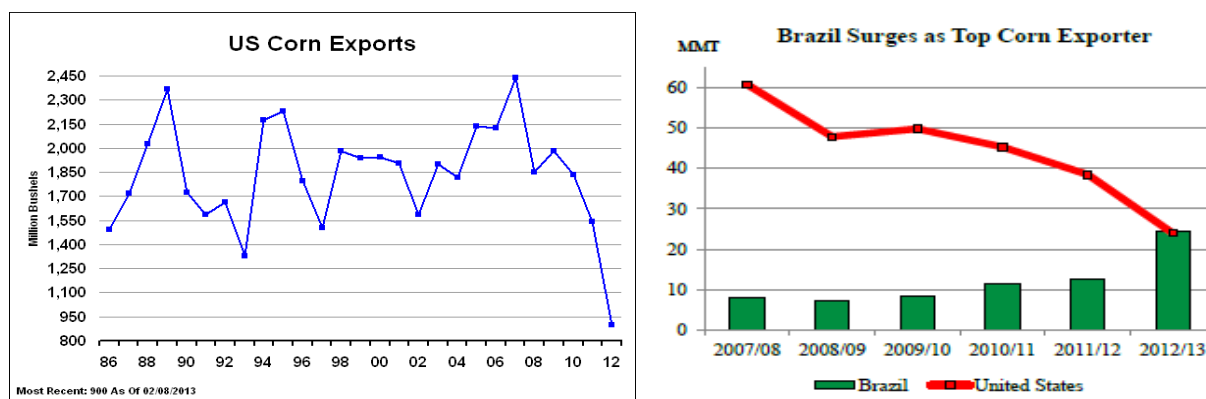
Actually, the corn prices soared in the summer of 2012 due to drought damage. With the growing possibility of the inability to sufficiently satisfy the domestic feed demand within the U.S., a large number of livestock producers, representatives of livestock companies and producer organizations, one after another, submitted requests for “Ethanol Waiver” of the mandate set by the RFS, to the Environment Protection Agency that was responsible for the mandate. It was the time that the circumstance surrounding the issue of “Food and Feed vs. Fuels” just entered into the phase where it could no longer be controlled only by the USDA. The soaring corn prices due to the drought in the summer of 2012 happened to demonstrate the start of the new phase.

This problem can adversely affect Japan both in the medium- and long-term although it was, caught in the boom of bio-energy for some time. Plants continue to require a certain amount of raw materials once operation started and as long as it continues regardless of what products they manufacture. In this sense, today’s demand for corn for ethanol production should be regarded as the largest fixed demand within the U.S. Now, the demand for corn for export ranks the third, followed by ethanol and domestic feed. A change in ranking is also observed in this area.

According to the data released by the USDA in the February of 2013, the corn export demand this year is further down to 900 million bushels, less than a half of the volume of 2011 (1,834 million bushels). The U.S. corn exports represented 84% of the total corn exports in the world at its peak in the year of 1979/80 since 1960/61 when the USDA database was completed, and in 2012/13, it is projected to decrease to 25%. Needless to add, the producer that has steadily increased its competitiveness is Brazil that has the high production record of 73 million tons last year.

<sup>13</sup> The data is from the statistics of Renewable Fuels Association. The URL is <http://ethanolrfa.org/pages/statistics#A> (February 24, 2013)

Fig. 4 and Fig. 5 U.S. Corn Exports Estimate (left) and U.S. and Brazil Export Changes



Source: Both from CBOT and USDA data

## 2) Embargoes in Emergencies <sup>14</sup>

To what extent can the grain export be controlled at the time of emergency? This is the second issue. A typically used export restriction is one measure of economic sanctions in a broad sense. Various kinds of economic sanctions are divided into joint actions taken by allied countries, the international society and unilateral actions when looked at from the conceptual perspective. Some of those actions are taken for the containment of threats of the target country or demand them to rectify their actions, and others are taken to protect own people.

Lets' put a focus on the period after the World War II and the export restrictions mainly imposed on agricultural products by the U.S. Some of these were imposed on China in the early 1950s and Cuba after the Cuban Revolution in 1957, and a series of five controls placed from the 1970s to 1980s. In this paper, two well-known grain-related export restrictions are briefly reviewed.

The first one was the export restriction on soybeans, cottonseeds and their related products enforced for a short period of time from June 27 to July 2, 1973. The export stopped only six days, but the influence was quite prominent. After that, while the movement of the U.S. domestic demand was monitored, the export licensing system that required on a contract-by-contract basis was introduced. All controls were lifted on October 1, 1973.<sup>15</sup>

Generally, the following elements are said to make up the background of this situation: the harvest was bad in the U.S. and, soybeans were in short supply; the production of soybeans of other countries such as the former Soviet Union, India, Australia and South Africa for the year was also at low levels; the increased soybean demand for livestock feed in the U.S. could not be satisfied because of the supply shortage of fish meal from Peru that continued since the previous year; the dollar was depreciated.

However, it is highly likely that other several elements interacted and influenced the final political decision, partly because John Thomas Dunlop who was Director of the U.S. Cost of Living Council at that

<sup>14</sup> The descriptions on the soybean restriction in 1973 and grain embargo in 1980 in this section are the summary of the content of [15] pp.3-5.

<sup>15</sup> These export restrictions were implemented almost 40 years ago, and at present, it is often said that the controls lasted for about two months collectively. To be more precise, the process/details and periods of the controls are as described in this paper. It is needless to say that an export control on a license basis works same as an embargo when a license is not issued.

time indicated the background of the trade restrictions in his writing as “giving high priority to the tables of American consumers”.<sup>16</sup>

Japan had steadily increased soybean imports from the U.S. Its total import volume of soybeans reached 3.64 million tons in 1973 (of which 3.21 million tons are from the U.S.), however, the import dropped to 3.24 million tons in the following year of 1974 (of which 2.92 million tons are from the U.S.). The export restriction introduced in 1973 by the U.S. gave Brazil an export opportunity of 180 thousand tons of soybeans to Japan, although its soybean exports to Japan in the previous year were zero. Before the U.S. imposed the export control on soybean, Brazil was not a competitor of the U.S. in soybean exports to Japan due to the high transportation cost to Japan. Thanks to the U.S. export restriction, Brazil continued exporting its soybeans to Japan for the following several years. Japan took the advantage of this opportunity to diversify source countries and started establishing a relationship with Brazil's rapidly growing soybean industry by supporting it in oil extraction technologies.

In the mid-term, however, the price competitiveness of the U.S. soybean overwhelmed others after the removal of this export restriction, and subsequently Brazil's soybean were placed at the second place over many years, as it is well known.

Most other countries negatively responded to the influence of the regulatory action in 1973, and “European countries and Japan claimed that the U.S. was not a reliable supplier in the important area of food supply and the future reliability of the nation as a supplier was substantially diminished.” Even on the side of the U.S., Ray Davis, President of the National Association of Wheat Growers at the time commented that “the lack of reliability on changes in export policies and the unforeseeable changes pose a major obstacle to an increase in production.”<sup>17</sup>

Finally, the International Trade Commission, an independent organization of the federal government, summarized that “the U.S. got the reputation of a unreliable supplier of soybeans and related products due to the export control in 1973” and at the same time commented that this control resulted in “a decrease in the U.S. share despite an increase in the world exports of soybeans and related products.”<sup>18</sup>

The second case is the embargo in 1980, which was a more extensive and larger export control action.<sup>19</sup> This U.S. grain embargo enacted by the administration of President Carter is well known, but, today, simply by the fact and the recognition that the use of grains as strategic products was a failure. Since this is an event occurred more than 30 years ago, the problems involved and general review on the embargo including the course of the event are briefly looked back below.

On January 4, 1980, President Carter announced the embargo of grain exports to the Soviet Union. On January 7, he instructed the Secretary of Commerce to immediately take necessary actions under the Export Administration Act of 1979 in cooperation with the Secretary of Agriculture and other related authorities. The President explained that the trade embargo was enforced for the reasons of foreign

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<sup>16</sup> [6], p15

<sup>17</sup> [6], pp.15-16.

<sup>18</sup> As a matter of fact, the U.S. share in world's soybean trade was 92% in 1972 before the embargo and declined to 67% in 1975. [6], p15

<sup>19</sup> More specifically, the United States imposed five export controls or embargos in the 1970s: two moratoriums on grains to the Soviet Union in 1974 and 1975, a moratorium on grains to Poland in 1975 and a more extensive grain embargo in 1980 in addition to the soybean embargo imposed in 1973 as mentioned above.

policies and national security.

At that time, the Soviet Union had entered a grain agreement with the United States, effective for five years from 1976 (the embargo excluded 8 million tons of wheat and corn to be exported under this agreement).<sup>20</sup> In accordance with the direction of the President, the authorities concerned enforced the export control on January 7, 1980. This export control, which is usually referred to in Japan as the “grain embargo against the Soviet Union” lasted until it was lifted in the following year, on April 24, 1981. The total volume of grain trades affected by this embargo is said to be almost 18 million tons.

Our daily life is formed based on our unconscious premises that a numerous number of activities have some consistency each other and are carried out in a simultaneous and parallel manner. The grain embargo in 1980 was an “abrupt” and “autocratic” decision for many people concerned, at least in the beginning.

Even if an embargo is a political decision, specific actions to prevent the confusion of or stabilize the market are concurrently required on a practical level.

What were imposed by the U.S. government at the time are outlined: 1) removing grains not traded in the market, and 2) buying out the grains from exporters for which contracts had been signed but not yet shipped. Regarding 1) above, the government increased the loan price facilitated for production of each product item defined by the agricultural law at the time and encouraged to make the most use of the stock held by producers, while, regarding 2), it purchased the grains for which contracts had been signed but not yet shipped through the Commodity Credit Corporation (CCC). As to the problems involved in these two kinds of activities (called “offsetting activities” as they mitigate the impact on the market), key points picked out mainly from the data prepared by the U.S. General Accounting Office are discussed below.

First, the U.S. government did not have enough time to examine what to do in response to the embargo. Among others, preparation and analytical study seem to be decisively insufficient.<sup>21</sup>

As a result, the several measures were actually taken with almost no careful preparation or analysis. In the beginning, the producer’s stock was expected to work well so that the surplus was successfully removed from the market. In reality, however, it did not work. What is pointed out as the causes of failure is that the purchases of grains under contracts were carried out based on the insufficient records. Another point is that priority was given to the purchase within a limited time frame without planning how to dispose of (resale) the purchased grains corresponding to about 2.4 billion dollars.

Furthermore, careful post-examinations revealed various doubts if the government really needed to purchase those items at the prices because it bought even unregulated items, low quality items and regulated items that had little impact on the market. As a result, it is said that these inefficient actions stood in the way of price recovery, increased costs and caused a loss to the federal government.

Various suggestions based on these lessons learnt from this embargo were put forward: 1) the

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<sup>20</sup> At that time, grain agreements permitted the base annual volume for corn and wheat of 6 million tons and additional 2 million tons were purchased without prior consultation. In 1979, the U.S. government approved a further addition up to 25 million tons and the Carter Administration imposed the embargo on this addition.

<sup>21</sup> The statement of the President was made on January 4, 1980, the formal order was issued on January 7, and a series of countermeasures were announced by the Commodity Credit Corporation on January 8. During this period, the Secretary of Agriculture announced that the influence of the embargo was estimated to at about 3 billion dollars.

necessity of prior preparation of a contingency plan in anticipation of that situation, 2) collection of necessary data and analysis to know the level of impact, 3) the necessity of analysis of both advantages and disadvantages of the embargo for exporters prior to the purchase on the market, and 4) establishment of a certain level of monitoring system even if it were not a perfect one.<sup>22, 23</sup>

The decision was made in the political circumstance at the time, and anyway, the results of the use of food as a weapon were turned out to be substantially different from those initially expected.

### **3) “Invisible Infrastructure” constructed between the U.S. and Japan**

The very nature of economic activities is a relationship with others, and grain trade is no exception. As mentioned earlier in this paper, Japan continues importing about 30 million tons of grains a year. Needless to repeat, the majority of the imports are from the U.S.

What are important are who routinely keep importing 30 million tons of grains without a hitch and how they smoothly allow the grains to flow into Japan. We take it granted for that drinking water automatically runs out of the tap when we turn the knob. In reality, it is quite a blessed and rare condition found in the world. This is true for the situation of grain imports. The actual distribution system does not reach the level that allows all 30 million tons of grains to be transported at a time. Even today in the 21<sup>st</sup> century, grain transportation depends on barge and bulk carriers, which have several physical limitations regarding the carrying capacity per trip.

Taking the grains imported from the U.S. as an example, corn and soybeans produced in a Midwestern area are transported to a grain elevator located in a port of shipment, using a group of barges called a “unit barge”, which is comprised of several 1,500 ton-level barges. The grains are here reloaded onto an ocean vessel. The size of the vessel is limited (to about 50,000 tons) as it must pass through the Panama Canal.

According to a simple estimation, if 12 million tons of corn for feed use out of the total annual corn imports of 16 million tons is all imported from the U.S., the monthly imports are 1 million tons. This volume of corn requires 20 bulk carriers for the shipment to Japan even if the largest possible ocean vessels are used. Taking a month as 30 days, one ocean vessel should arrive at a Japanese port from the U.S. about every 1.5 days. If you give it some thought, you would realize that it would be extremely inefficient to allocate a 50,000 ton vessel filled with corn for shipment to various ports throughout Japan.

Ports from Hokkaido to Okinawa are waiting for not only corn but also various other grains including soybeans and wheat at their respective levels of volume depending on the demands of their backlands. In other words, cattle, swine and chickens are eating not only corn. Furthermore, livestock animals require different feed ingredients at different growing stages.

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<sup>22</sup> This is stated in [14]. Actual actions taken against and impacts on the Soviet Union not referred to in this paper and mentioned in [2], [3], [5], [14] and other literature. The historical changes of the Export Administration Act is available at the following URL: <http://www.fas.org/sqp/crs/secrity/RL31832.pdf#search='Export%20administration%20act'> (February 4, 2013)

<sup>23</sup> In the “Food Safety Emergency Operation Manual (September 2011 Version)” prepared by the Ministry of Agriculture, Forestry and Fisheries in Japan, emergency events that may have adverse effects on the food supply in Japan are divided into three seriousness levels (0, 1 and 2). Under the title of “Approaches and Procedures for Ensuring Imports” in the same manual, the descriptions are focused only on the two subjects: “Diversification of Import Sources and Promotion of Imports of Alternatives” and “Directive of Imports under Act on Emergency Measures for Stabilization of National Life”

In actual transportation, therefore, corn of 35,000 tons of and soybeans of 15,000 tons, for example, are loaded together onto a 50,000 ton vessel as appropriate to ensure the most efficient vessel allocation. As a result, the actual number of grain vessels arriving at Japanese ports a month exceeds well over 20 vessels as calculated according to the previous estimation. More importantly, not only the vessels that you see at ports in Japan but also a long series of vessels on the grain transportation pipeline across the Pacific Ocean are bringing grains to Japan without a break, which allows livestock, soft drink and other industries in Japan to concentrate on their manufacturing, processing and then sales activities without worrying about the procurement of ingredients.<sup>24</sup>

From a wider point of view, an activity of importing grains is one form of international trade or international transaction and carried out in accordance with the international rules established based on commercial practices over the centuries. Since these rules define the details of rights and obligations of buyers and sellers that are based on the long history of commercial practices, they often fail to provide necessary flexibility in responding to short-term changes. Japan has continued importing grains for a long time and has established a number of trusting relationships with exporters in a manner quite similar to commercial practices in order to compensate for such drawbacks. Such relationships are fostered in a form of not only trade but also investment in exporting countries.

It should be understood that, as a result of these activities or the efforts exerted by countless numbers of people engaged in trade, transportation, storage and all other related services, it appears that grains are automatically distributed throughout this country just like drinking water running down from a tap. We owe this to the “invisible infrastructure” that supports the livestock industry, one of the important pillars in agriculture in Japan.<sup>25</sup>

#### **4. U.S. Strategies for Asian Markets from the Viewpoint of Grain Exports**

Finally, in the light of the “Emerging Food Market in East Asia” that is the name of the workshop, some discussions are presented on the subject of the U.S. strategies for the Asian markets from the viewpoint of grain exports and Japan’s possible measures for them.

The first is the issue of the global environmental changes. There are some points to be noted.

In short, the economic growth accompanied by the improvement in living standard and growing population mainly in East Asia is the common background of all the changes. Food issues, especially grain exports are closely related to these changes. If you look at the history of the U.S. agricultural products export for the past 20 years based on the above understanding, you can identify the clear trends of the changes. One of them is the change from “bulk to HVP” as discussed earlier in this paper. This is also a change to differentiate products by adding value while economies of scale such as mass production and mass transportation were exclusively pursued. Among others, the growth of processed

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<sup>24</sup> This is also true for the energy issue. It is not too much to say that Japan of which self-sufficiency ratio in energy is only 4% totally depends on imports. Our lives are stable only because the “invisible infrastructure” for oil transportation has been well established between oil producers in the Middle East and Japan.

<sup>25</sup> See Mitsubishi, Seiji (2011), “Soratobu Buta to Umi o Wataru Tomorokoshi (Hog Lifts and Corn from America)” for more information. Available at <http://www.grainsjp.org/Hog%20Lift%20and%20Corn%20from%20America.pdf>

food sector is outstanding, and it seems to become one of the principal pillars in the U.S. agricultural exports along with the sector of traditional bulk agricultural products.

Next, bulk agricultural products such as corn, soybeans and wheat will stay at a certain position in the U.S. grain exports for a while. They, however, will be placed in a much more competitive environment especially in the international agricultural market because other competitors such as Brazil and Argentina are dramatically raising their relative positions. Even the grain embargo imposed against the backdrop of its overwhelming market power did not work well. The U.S. sharply dropped its relative position as a grain exporter since the days of embargo and, if the U.S. does not learn from this fact, the possible strategic approaches of export to the East Asian markets will be probably quite limited.

If you look at it from the perspective of the counterpart, a grain importer has a wider choice for any emergency since the U.S. has declined in the overwhelming market power, which results in dispersion of power in the global market. In other words, an importer can choose a trade partner from other countries having surplus for exports such as Brazil and Ukraine when the U.S. is unable to export grains. Although traditionally, imports from these countries are made only as an emergency measure, grains will possibly be imported from them on a regular basis. Central Asia is geographically close to Japan, and production countries in the Southern Hemisphere have opposite seasons to the Northern Hemisphere can be possible choices as stable sources, which may be beneficial to East Asian countries aside from the transportation costs.

The point is how much time and cost those countries will take to construct relevant laws and regulations, quality control system and transportation infrastructure which are comparable to those currently established by the U.S. The time and cost seem to serve as a true test of competitiveness of respective exporters as well as the stability of the entire global market. A long and stable relationship between an exporter and an importer cannot be built until an "invisible infrastructure" is constructed which requires both parties to exert continued effort. In line with this context, the current issue of GM crops will enter into a new stage where such crops are re-examined in the light of the protection of all related intellectual property rights.

Meanwhile, the NAFTA marked the beginning of the shift where Japan and the EU, traditional customers of the U.S. were replaced by Canada and Mexico. It is understandable that the U.S. has to have a good relationship with Canada and Mexico as they are its bordering neighbors. China, however, is not the case. China is extremely attractive as a trade partner because of its huge market, however, frankly speaking, this partner requires very "sensitive" care in various dimensions, and the U.S. has yet to solve many problems in trade with China when intellectual property rights for GM crops and others are concerned on which the country places emphasis nowadays. It seems that the U.S. will be forced to slowly move forward while solving respective problems faced by it one by one.

In fact, looking at its responses to various trade related problems including those related to intellectual property rights which are increasing in the recent international relationships, the author has the impression that the U.S. has brought up the TPP (Trans-Pacific Strategic Economic Partnership Agreement) as a new framework in which it would demonstrate its initiative, since it finds that coordination



by WTO or other existing organizations may be insufficient.

Furthermore, there is a pressure in a different area from agriculture in the U.S. It comes from the situation where the corn demand for production of ethanol as a renewable fuel has almost achieved the initial goal and is getting fixed. The fixed corn demand of 4.5 billion to 5 billion bushels is far beyond a non-negligible level for domestic industries, and the ethanol industry is now the largest user, whether or not it is desirable.

Second, let's view these environmental changes inside and outside the U.S. from the standpoint of the country. The author believes that the long-term stance of the country stays unchanged as its basic foreign policies not only in the area of agriculture but also in other areas although it has modified the details to take flexible measures suitable for each case. It is because the constant approach is something like the philosophy of the U.S. as a nation. The author does not mention what is the philosophy of the U.S. to avoid a deviation of the purpose of this paper, the following three points should be understood here.

The first is "to minimize the risk of major war and to keep security competition under control." This is especially apparent in the military field. The second is "the pursuit of open markets consistent with broader U.S. economic strategy in an era of increasing globalization." The last is "to project American values, from the rule of law and the principles of democracy to American-style capitalism and Western concepts of human rights."<sup>26</sup>

Let's apply these policies to grain exports. "To avoid disputes wherever possible" and "to take control in the area concerned" seem to be most obviously observed in agricultural exports to the East Asia, especially China. The U.S. does not want to lose Chinese market in consideration of the size of the value involved, and has to move forward while taking balance with the issues of intellectual property rights and nation-wide policies. In consideration of the trade in a form consistent with the strategies for the entire U.S. economy, the basic policy of the country is still to sell the U.S. agricultural products not only to China but also to countries all over the world "wherever possible" and the U.S. seems to have a desire to eventually influence the ways of thinking of people in those countries by American values, rule of law and democracy. Undoubtedly, Japan used to stand at a position befitting this framework of the U.S.

At present, however, many of East Asian countries have a wide range of choices. As mentioned earlier, South American countries and Central Asian countries are increasing their capacity to export. In addition, the U.S. seems to fall into a situation where it is obliged to assign the highest priority to address domestic issues both in politics and economy.

In the light of the above circumstances, the author has an opinion that the worst case scenario in future grain exports is related not to trade embargos like those imposed in the past but to the new Energy Independence and Security Act (EISA) behind the steady growth of ethanol production.

In other words, the U.S. may have an assumption that it will be virtually unable to export corn if it has the negative prospect for the commercial production of cellulosic biomass for the use of 36 billion gallons renewable fuels according to the 2022 mandate.

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<sup>26</sup> These points are stated in the beginning of [7]. Although the view of Mr. Moore might be controversial, these basic stances seem to be maintained though different administrations from a more macroscopic perspective.

The corn producers of the U.S. were struck by drought last year, but they produce about 12 billion bushels of corn a year on average. Repeatedly, the legal obligation for ethanol use for the period until 2022 is 15 billion gallons per year, which corresponds to 5.4 billion corn-equivalent bushels at the current level of technology. Taking into consideration a little improvement of productivity in the future, corn production in the U.S. will be broken down to 4.5 billion to 5 billion bushels for ethanol, 4.5 bushels for livestock feed and the rest for exports. If this rest for exports is used for the production of cellulosic biofuels that are designated as a type of the mandatory renewable fuels, the domestic demand would use up all the corn produced in the U.S., which does not leave any room for export in the first place. The domestic production would be 100% consumed domestically and the possibility of this self-contained situation would not be ruled out.

Of course, the author does not wish this to happen, but in fact, the U.S. corn exports this year are projected to stay at a very low level of 0.9 billion bushels. A further one third will be reduced from the total projected corn exports on a calculation basis if all of the current ethanol plants in the U.S. operate at full capacity. In consideration of the fact that only the half of the 2022 mandate of 36 billion gallons renewable fuels has been attained, the absolute worst case scenario might be that the U.S. has no corn surplus if the country has no better prospect for the commercial production of cellulosic biomass. Policymakers often take a worst case scenario for a strategic purpose and manage to leave a way to assure the self-contained approach.

If the yield per acre increased 20 bushels to 140 bushels, corn production simply increases by 2 billion bushels and this level of average yield was achieved two years ago. The worst case scenario contains many variables and should be applicable only when many different unfavorable conditions exist. However, nobody could determine the worst case scenario is impossible.

Third, in the light of the above, possible measures and perspectives to be taken by Japan are discussed. Please forgive the author for somewhat qualitative descriptions or those based on a subjective impression, rather than those based on numerical data.

Japan has established extremely good partnership with the U.S. over past decades, and the same applies to the field of grain exports, not to mentioning the “invisible infrastructure” as described in this paper. However, people both in public and private sectors in Japan seem to fully realize the global environmental changes and strongly feel that it is dangerous for Japan to depending unilaterally on the U.S. as it did in the past.

As a matter of fact, in the business world, there may be a large number of companies that are struggling to obtain grains to meet their immediate demands. If the importance of the arrangement to satisfy the present and emergency needs is intentionally left aside, the future relationship between Japan and other grain exporters should be understood as follows:

Firstly, as to the relationship with the U.S., if limited to the issue of grain imports, Japan should firmly maintain its stance of placing top priority on the good relationship as a fundamental rule. The reason is that all systems related to grain imports from the production areas in the U.S. to consumption areas in Japan, or the “invisible infrastructure,” has been already established in the most efficient manner. There

are scarcely reasons for abandoning all of the fully established systems that provide services related to quality, safety, contracts, insurance, transportation, management and everything necessary for grain import. To shift those systems to others would require considerable time and expense, and the position of the U.S. as an importer has not yet declined enough to rationalize the shift from an objective perspective.

Japan, however, seems to be no longer the top customer when looked at from the viewpoint of the U.S., although it may still be a familiar customer. If so, what approach should Japan take? In consideration of the relationships between the U.S. and its current top customers, it seems to be desirable to exert effort for looking to a new type of relationship suitable for each other even if this is not easy. More specifically, in the growing demand for imported grain in East Asian countries, Japan should be directly or indirectly involved in building the relationship between the U.S. and those countries by assisting the U.S. in catching such demands. This should lead to the stable supply of grains that are needed in Japan in the longer term. In other words, the point should be placed on how effectively Japan can incorporate its experience, technology and know-how in the development process of East Asia and grain import activities of the U.S.

Another question is how we should handle the relationships with other exporters than the U.S. This may be more abstract discussion, and it seems that the circumstances are forcing Japan to build several long-term trust relationships based on actual trades and investments that are similar to those built between Japan and the U.S. Repeatedly, this requires a lot of time and effort and may impose some risks. Yet, the inevitable challenge to Japan will be how to establish such relationships and maintain them as flexible setups that effectively respond to changes.

## **Conclusion**

Although a system and a setup are usually constructed in effort to optimize something, they start to get obsolete immediately after they are established. Furthermore, it may be said that strategies and management mean the constant efforts to slow down the speed of the obsolescence process. As a lifetime of a person and the time period in which a person works on the front line are limited, even a seemingly immutable logic or setup is nothing but a temporary stability in ups and downs if it is looked in a long time span.

In this sense, the “invisible infrastructure” as reiterated in this paper has changed its form flexibly in response to the changes in surrounding environments. Obviously, it is impossible to keep up with changes by just adhering to the present schemes. It is not clear whether and to what extent the moves of the emerging food markets in East Asia and accompanying moves of grain imports/exports attains immutability in a certain time span, but the various trends as described in this paper are likely to appear as general trends in a time span of at least 10 to 20 years.

If Japan simply continues reiterating its past approaches and following the stance of the U.S., a substantial decline in position is inevitable soon or later. What is required for Japan to survive this circumstance is thinking strategically and making “reasonable” contribution accepted by all parties concerned, that is, the U.S. and other East Asian countries. Is it in a form of trade such as a physical sales

transaction, investment to support partner's development or consultation to share the lessons learnt from past experiences, or through completely new technology, service or framework? We must earnestly consider this issue because it can be the greatest challenge faced by Japan for the future.

Finally, I thank you for the valuable comments from Dr. Masayoshi Honma, Chairman, and other committee members in this workshop, which helped me realize various viewpoints that I had overlooked and misunderstood. In addition, I received many valuable suggestions that include one for an adjustment of the schedule from Dr. Tetsuro Hamamoto, Japan Director of the U.S. Grains Council who provided us with this opportunity. I would like to thank him from the bottom of my heart.

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