

AGREP

Arkansas Global Rice Economics Program

Update for International Rice Outlook

International Rice Baseline Projections, 2013-2023

Report Prepared by

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In cooperation with

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Update for International Rice Outlook

International Rice Baseline Projections, 2013-2023

Eric J. Wailes and Eddie C. Chavez

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Abstract

This outlook contains updated baseline rice projections from the Arkansas Global Rice Economics Program (AGREP) for U.S. and international rice economies. The purpose of this document is to present the current state and the expected directions of the rice economies in the world by assessing their potential supply and demand paths over the next decade. This set of projections serves as a baseline for evaluating and comparing alternative macroeconomic, policy, weather, and technological scenarios. The estimates are intended for use by government agencies and officials, farmers, consumers, agribusinesses and other stakeholders who conduct medium- and long-term planning.

The AGREP baseline projections are grounded in a series of assumptions about the general economy, agricultural policies, weather, and technological change. It is generally assumed that current agricultural policies will be continued in the United States and other countries reported in this study. The projections included in this outlook are based on the information available as of August 2014. In light of the volatility of the global rice economy, a stochastic analysis is included in this report to provide a better understanding of the probable distribution of future outcomes. The stochastic estimates establish likely upper and lower bounds for selected variables.

Introduction

This updated outlook is not a set of predictions but rather a framework to present a baseline of the likely direction of key variables in the global rice economy and the degree of variability on some of the key variables. Deterministic and stochastic baseline estimates presented in this report are generated using the Arkansas Global Rice Model (AGRM). AGRM is a multi-country/regional statistical simulation and econometric framework developed and maintained by the Arkansas Global Rice Economics Program (AGREP) with the Department of Agricultural Economics and Agribusiness at the University of Arkansas, Fayetteville.

The AGRM has benefited from working closely with the Food and Agricultural Policy Research Institute (FAPRI) based at the University of Missouri, Columbia which maintains U.S. agricultural and other commodity models. They provide data on U.S. rice variable costs of production, and other crop prices and net return projections which are transmitted into the AGRM country models as applicable.

In particular, prices and net returns for corn, soybeans, and wheat are relevant considering that these commodities are substitute crops for rice in the U.S. and other countries. For example, rice area competes with a number of crops including soybeans, corn, and cotton in rice-producing states in the U.S. (Arkansas, Louisiana, Missouri, Mississippi, Texas, and California). In the People's Republic of China (PRC), rice competes with corn in the provinces of Guangxi, Heilongjiang, Jilin, and Liaoning; with wheat in the province of Jiangsu; and with both corn and wheat in the provinces of Anhui, Chongqing, Guizhou, Hubei, Ningxia, Sichuan, and Yunnan. In India, rice competes with wheat particularly in the northern states (Carriquiry et al., 2012; Wailes and Chavez, 2013).

The historical rice data is obtained from the Production, Supply, and Distribution (PS&D) online database of the USDA-FAS and USDA-ERS Rice Outlook as of August 2014. The AGRM rice marketing years by country generally follow the USDA system. For example, *the year 2013 or marketing year 2013/14* in the model refers to January 2014–December 2014 for Thailand, Vietnam, and Indonesia; October 2013–September 2014 for India; July 2013–June 2014 for the Philippines; and April 2014–March 2015 for South American countries. See <http://www.fas.usda.gov/psdonline/psdAvailability.aspx> for details. As such, the annual cumulative growth rates as well as the total growth numbers presented in this document are estimated from the marketing year 2012/13 and cover the 11-year period 2012-2023.

The global model is disaggregated into 46 of the major rice producing, consuming and trading rice countries/regions; and the rest-of-the-world is grouped into five regional aggregations: Africa, the Americas, Asia, Europe, and Oceania. With rice as an ascendant food staple in Sub-Saharan Africa, we provide projections of selected West African countries and for the ECOWAS (the Economic Community of West African States). Each country or regional model includes a supply sector (harvested area and yields), a demand sector (per capita use), with trade, stocks and price linkage equations. Net global rice trade for long grain and medium grain solves for the two respective world reference prices, long grain and medium grain.

The deterministic baseline assumes the following: a continuation of existing policies; Global Insight projections for macroeconomic variables; no new WTO Doha Round trade reforms; and average weather conditions. Growth rates in rice yields in selected countries are made relatively stronger than previous baselines in recognition of potential positive impacts from the Global Rice Science Partnership (GRiSP) R&D funding on global rice productivity.

The stochastic baseline provides a range of probable outcomes (confidence intervals), as opposed to the deterministic analysis which generates average point estimates. Stochastic estimates are useful given the fact that underlying assumptions in the deterministic baseline usually do not hold true in reality, i.e., actual market outcomes deviate from average estimates. Stochastic analysis provides information on risk and uncertainty which is an important characteristic of the international rice economy.

The stochastic framework is generated using multivariate empirical distributions (MVE) of the yield variable for each of the 51 countries and regions in the model, as well as for each of the six rice-producing states in the U.S. Yield is used because it is the variable that not only varies by year and by country but it is also very sensitive to changes in weather conditions and water availability—factors that are critical for rice production. The MVE take into account serial and geographical covariance. A total of 100 random draws are implemented using a 28-year empirical distribution of historical yields generated using the software Simulation & Econometrics to Analyze Risk (Simetar) developed by Richardson et al.(2008).

Rice Policy Overview

The rice sector policy assumptions by country are documented in Appendix Table 1 of the publication by Wailes and Chavez (2012). Current domestic and trade policies (e.g. tariff rates) are maintained over the baseline.

Key Policy Drivers

- In the last three years or so the international rice market has been impacted and dominated by two key events. The first is India's official lifting of its ban on non-basmati rice exports as of September 2011. The second is Thailand's implementation in October 2011 of its controversial and costly paddy pledging program (PPP), a price-floor support policy for Thai farmers. The PPP provides price supports to the rice producers which are as much as 50% higher than prevailing market prices (Wailes and Chavez, 2013). This resulted in a separation between Thailand's and other Asian rice export prices until early 2014. Figure 1 shows the price path of Thai100%B relative to that of Viet 5% over the last 32 months.

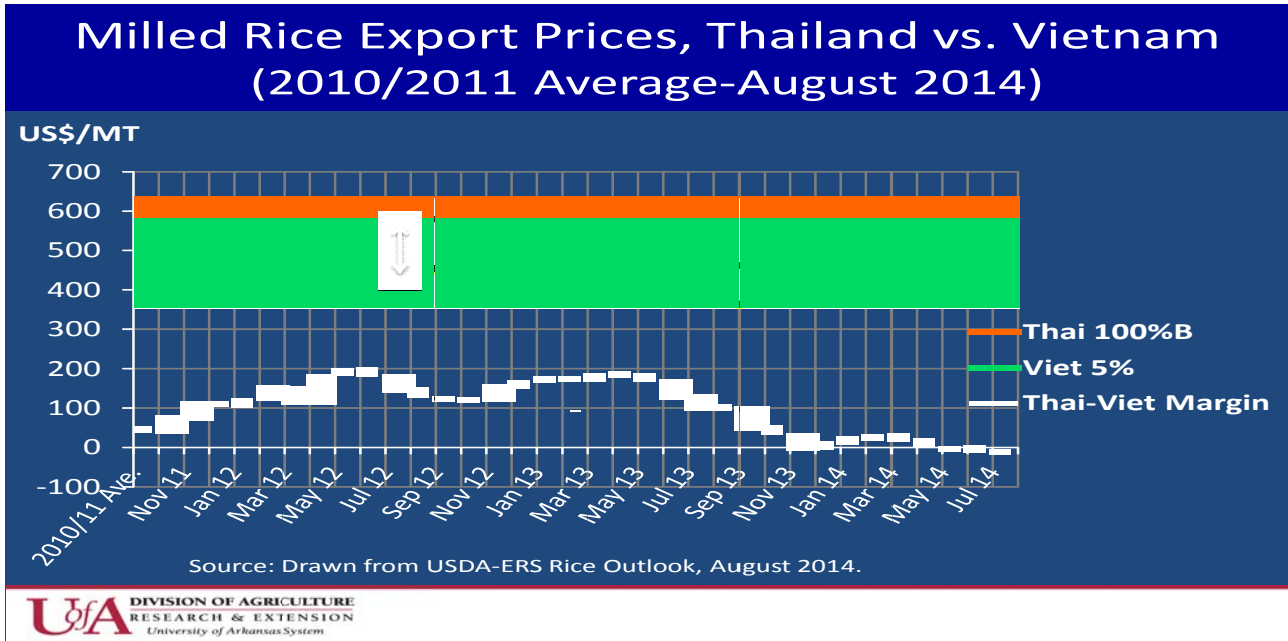


Figure 1 Separation between Thai Rice and other Asian Export Prices after Implementation of the Paddy Pledging Program

- The major consequence of the PPP is that Thailand lost leadership in global rice trade and its rice exports plunged 40% in 2011; and its rice stockpiles doubled (Figure 2). Since May 2012 the Thai 100% B price has substantially declined from \$614 per metric ton (mt) to \$399 per mt in May 2014, a 35% drop.

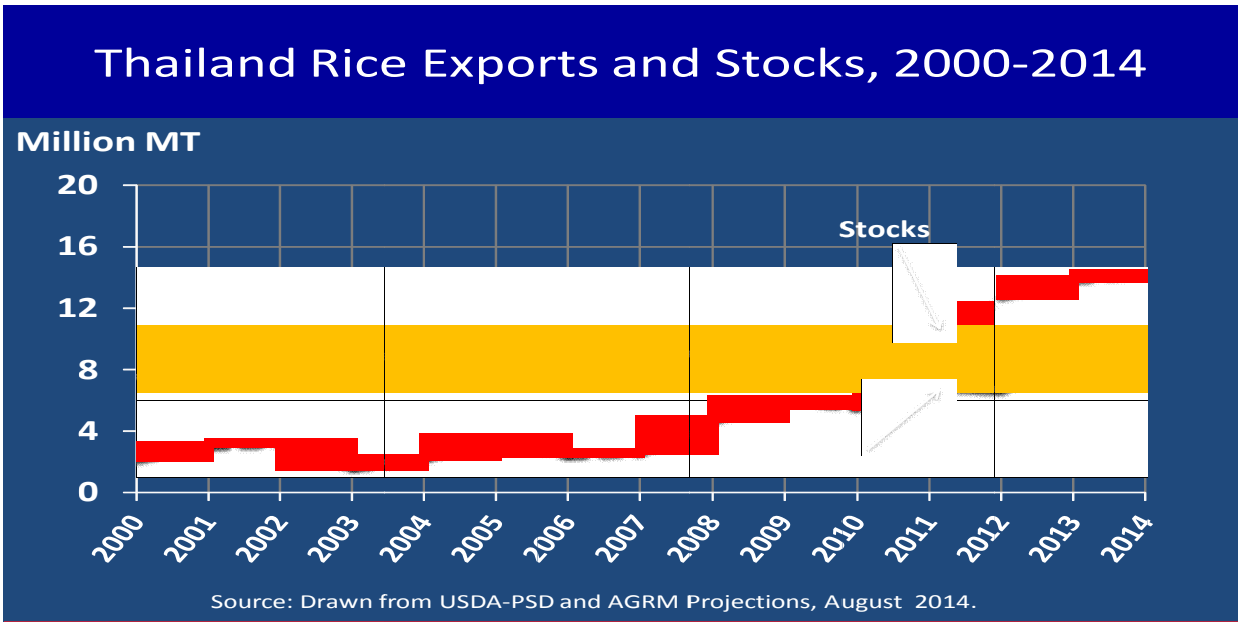


Figure 2 Impacts of the 2011 Paddy Pledging Program on Thai Exports and Stocks.

- Another consequence of this situation is that the prevailing high Thai rice price has limited its usefulness as the international reference long-grain rice price. As such, the equilibrium rice international reference prices currently generated by the AGRM (Figure 3) are closer to the prevailing export prices of Vietnam and India (Wailes and Chavez, 2013). This is supported by the fact that the global rice export market has since been dominated by India and Vietnam, with relatively dependable supplies also coming from Pakistan, Cambodia and Myanmar. However, as Thailand abandons the government storage element of the PPP, the Thai 100%B price is expected to resume its useful role as a world reference price for long grain rice.
- The PPP has faced numerous criticisms and problems on the domestic front, the last and well-known of which was the inadequate funds that delayed payments to Thai rice farmers. This situation was followed by a change in government administration. So far, the new leadership has shown caution in releasing/selling the country's excessive rice stockpile which stands at nearly 14.0 mmt. Consequently, the Thai 100%B price has started to recover, reaching \$444 per mt in August 2014—supported by relatively strong international demand.
- The current rice market still faces uncertainties given the coming new crop and the actual manner in which the release of the large Thai PPP stocks will be implemented. The situation is further complicated by the reported quality concerns on the old Thai rice that has long been kept on storage.

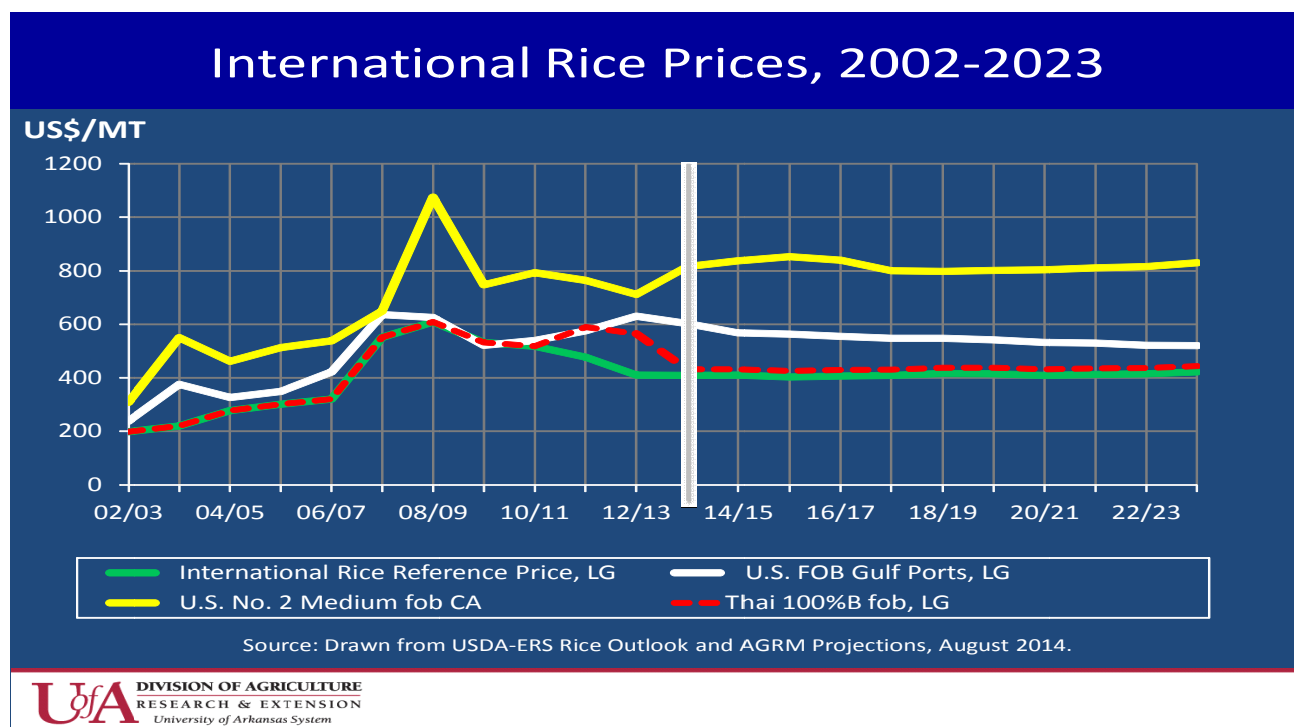


Figure 3 Historical and Projected World Reference Rice Prices.

- U.S. export prices remain abnormally high---with margins to Asian prices as high as \$200 per mt (Figure 4). By historical standards, this level is not likely to be sustainable as Asian rice exports will be expected to be imported into the U.S. Over the projection period, while global rice prices

grow slightly, the high U.S. rice export prices are expected to decline, as the wide U.S. price margin over Asian prices narrows to a more historically-reasonable level of about \$98 per mt by the end of the projection period (Table 1). U.S. rice average farm prices are projected to follow the declining trend (Table 3).

- There are several factors that can potentially drive the high U.S. prices downward, going forward. These include persistent rice surpluses in India and Thailand; significant investment in production and processing capacity on Mekong Delta in Vietnam, Cambodia and Myanmar; and productivity gains from hybrids and GRiSP research, positively impacting Asian and African rice economies; increasing competition with the U.S. based on quality with competitors; and strong trends in dietary diversification away from rice primarily in Asian countries.

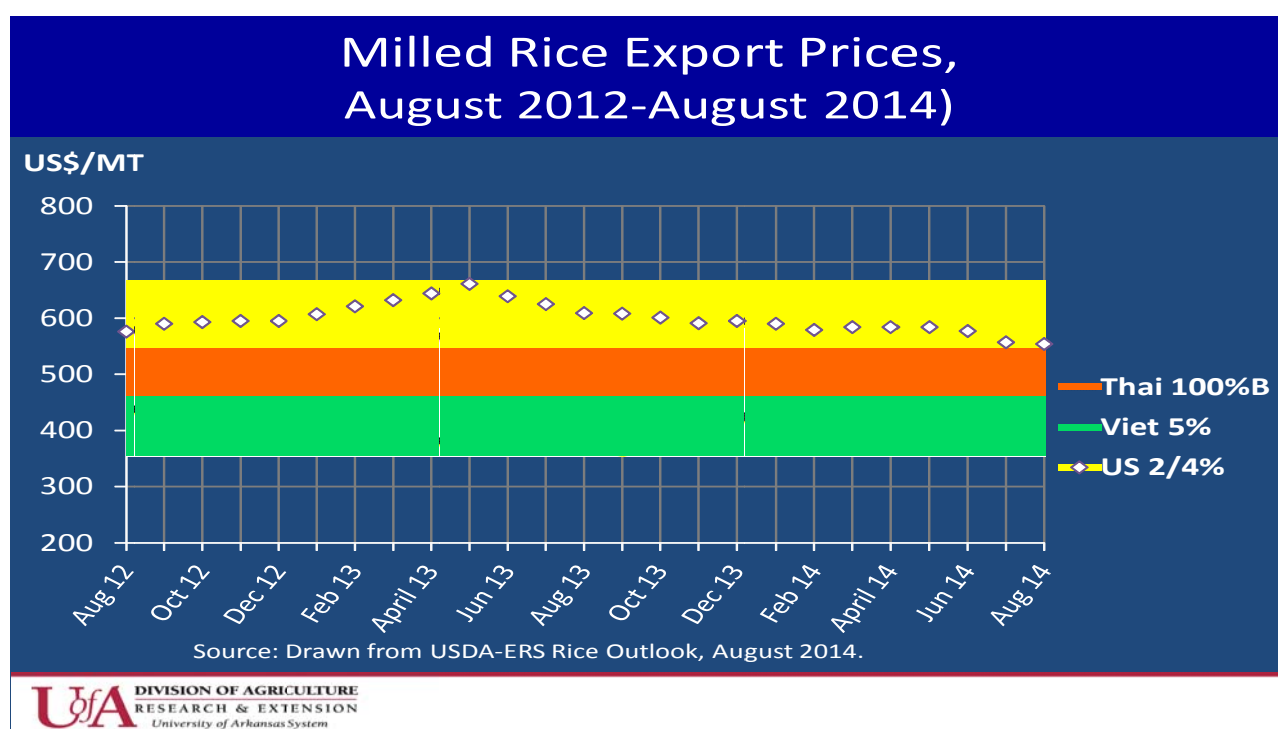


Figure 4 U.S. Rice Export Prices relative to World Reference Prices for long-grain rice.

Overview of Global Rice Supply and Demand

Rice is the most important food crop of the developing world and the staple food of more than half of the world's population, accounting for more than 20% of daily caloric requirement (IRRI, 2013). The international rice prices are highly volatile due to a number of reasons. Rice has price inelastic supply and demand throughout much of Asia, where it is the dominant food staple.

While rice is the primary staple for half the world's population, it is thinly-traded. Only about 7% of rice production is traded as opposed to 10 percent for coarse grains and 16 percent for wheat (Wailes and

Chavez, 2012). The international rice trade is highly concentrated with five dominant players (Thailand, India, Vietnam, Pakistan, and the U.S.) accounting for about 90% of global net trade (Table 1).

A combination of slow growth in rice consumption and increased output driven by the use of higher-yielding varieties and hybrids and other improved production technologies—in line with more focused self-sufficiency programs of major consuming countries—are expected to have a dampening effect on international rice prices over the next decade. Over the baseline period, as growth in production remains in close tandem with gains in consumption, prices remain relatively stable with long grain rice international reference price remaining within the range \$404 to \$422 per mt (Table 1 and Figure 3).

Over the baseline projection period, world rice output grows at 0.90% per year, reaching 519.8 million metric tons (mmt) in 2023 with 0.80% coming from yield improvement and 0.10% coming from growth in area harvested (Figure 5). Driven solely by population growth, global rice consumption gains 0.93% annually, reaching 519.4 mmt in 2023—with population growth of 1.03% per year expected to be offset partly by a 0.10% decline in average world rice per capita use (Table 2 and Figure 6).

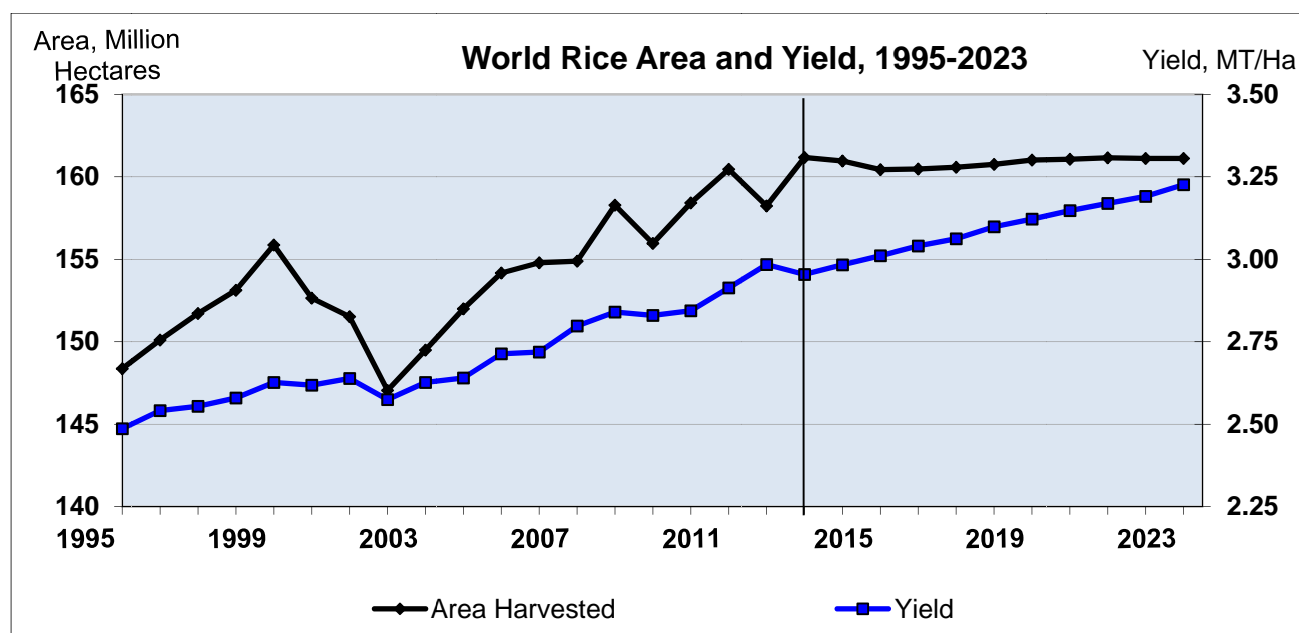


Figure 5 World Rice Harvested Area and Yield, Historical and Projected.

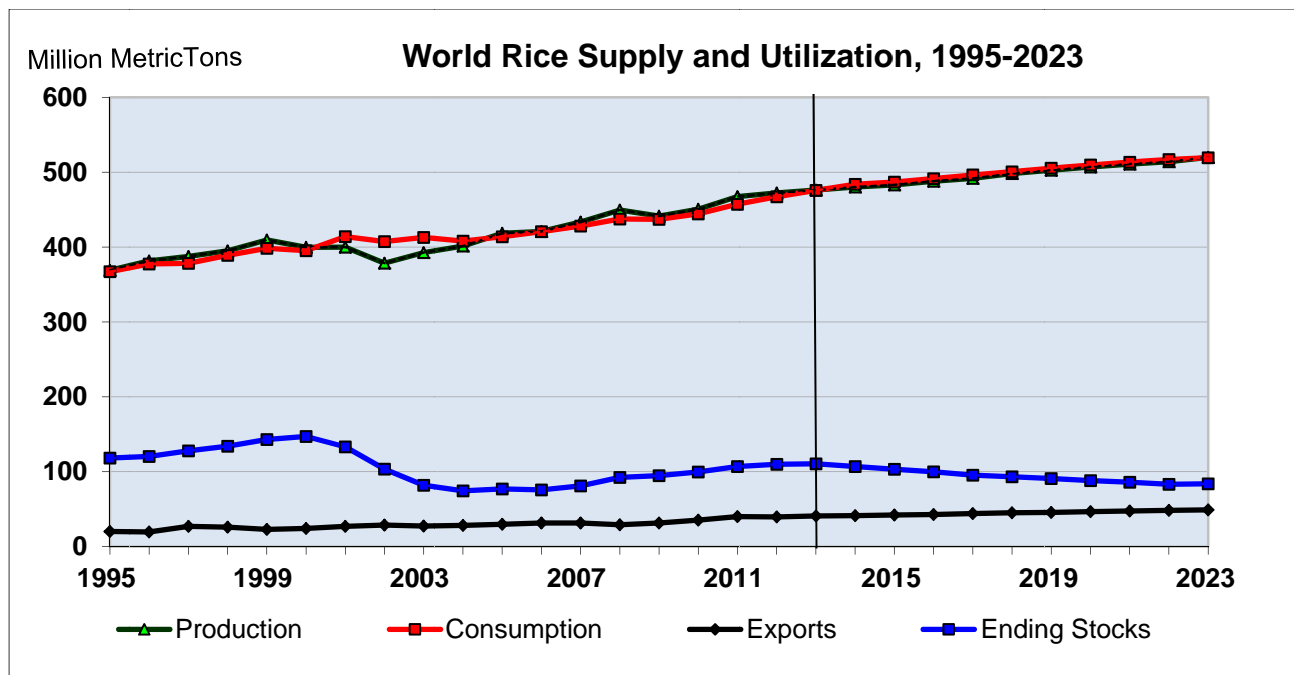


Figure 6 World Rice Supplies, Consumption, Trade and Ending Stocks, Historical and Projected.

While industry and government reports typically present only the total rice stocks in particular countries, it may be equally interesting to examine the corresponding ending stocks on a per capita basis to enable more meaningful population-weighted comparisons. Figure 7 depicts comparative paths of per capita stocks of selected major rice exporting and importing countries.

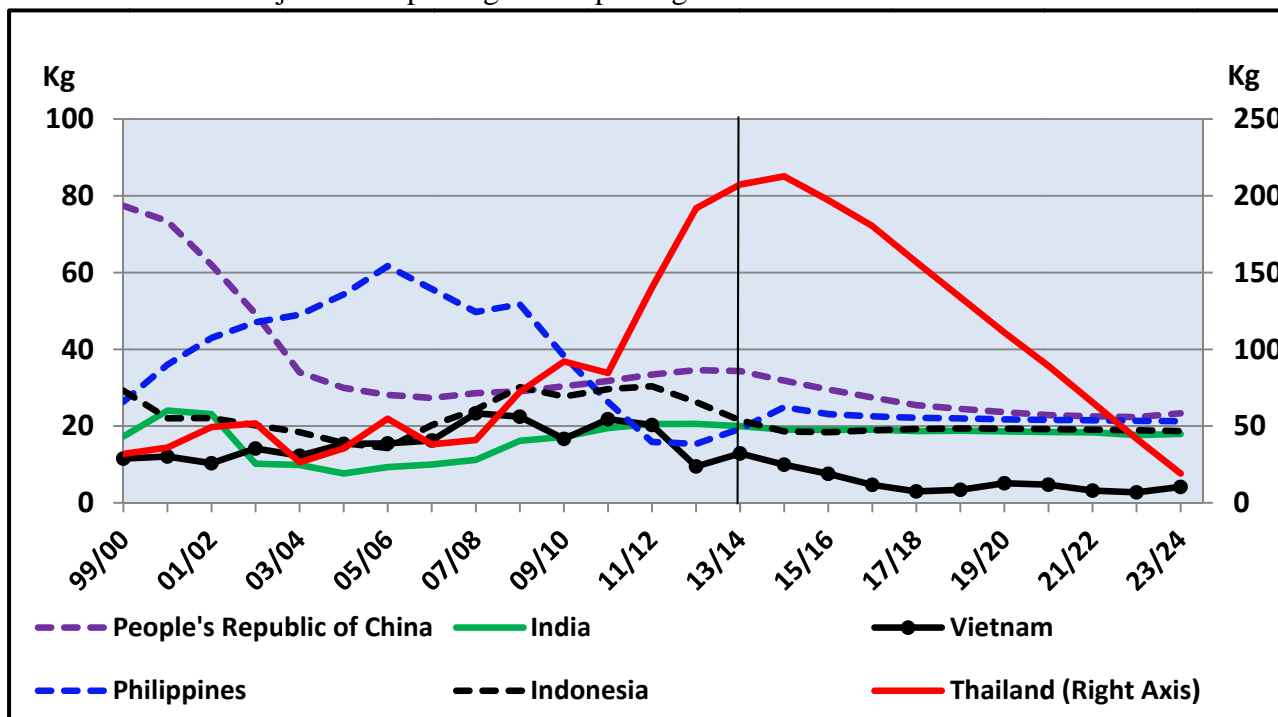


Figure 7 Per capita rice ending stocks for selected countries, Historical and Projected, 1999 - 2023.

As expected, as total rice stocks in Thailand builds up sharply as a result of the PPP, there has been a dramatic spike in per capita stock relative to the country's historical path. The per capita stock spiked from an average of 66 kg during the 5-year period 2006-2010 to 180 kg during the 3-year period 2011-2013, equivalent to a growth of 173%. Over the projection period, the per capita stock will decline in tandem with the Thai government's plan to release the excessive stocks—reaching historical level by the end of the period.

PRC's per capita stock has increased from an average of 29 kg during 2006-2010 to 34 kg over the period 2011-2013, as the country expanded imports in response to very attractive international rice prices. Over the projection period, per capita stock declines steadily, with an average of 25 kg. Vietnam's per capita stock generally declines as the country expands its exports. India's per capita stock level is projected to remain stable over the next decade.

Interestingly, the average per capita stock level for the Philippines declined from 44 kg during 2006-2010 to 17 kg over the period 2011-2013 as a result of the country's drive to limit imports and attain rice self-sufficiency. Recently, the country re-assessed its unattained self-sufficiency program and decided to resume rice imports to replenish its declining stocks. While the country's per capita stock is projected to recover to an average of 22 kg over the baseline period, it should be noted that this level is still just half of its historical norm.

Indonesia's average per capita stock has been relatively steady during period 2006-2013 at 26 kg, indicating relatively good stock management. The level, however, is projected to decline and level off at 19 kg over the next decade. Note that the country has also been trying to push for much publicized rice self-sufficiency by limiting imports and encouraging diet diversification.

Global net trade grows at 2.3% per year, reaching nearly 40.5 mmt by 2023. International long grain rice prices are projected to increase only slightly by 0.22% annually, as major rice consuming countries are expected to focus increasingly on self-sufficiency by increasing the use of higher yielding hybrids and other improved production technologies. Medium grain rice prices are projected to remain stronger relative to long grain prices, with an annual growth of 0.35% per year (Table 1).

Results of the Deterministic Baseline Analysis

- Projections generated from the deterministic analysis by country and by region for the period 2013-2023 are presented in Tables 1 thru 56. To serve as convenient reference, a general list of the tables with description is included below:
- Table 1 is a summary of the net trade by country and international rice prices (international long grain reference price, U.S. long grain export price, and the U.S. medium grain export price which serves as the international reference price for medium grain).

- Table 2 presents the summary of the global rice supply and demand.
- Tables 3 thru 47 are the basic supply and demand projections (production, consumption, stocks, and net trade), by country.
- Tables 48 thru 65 present the world regional (Africa, Asia, Western Hemisphere, Europe, and Oceania) rice supply and demand projections with a sub-regional aggregate for countries of each region that are modeled individually in AGRM, and another sub-regional aggregate for countries of each region that are modeled as a group in AGRM.
- Table 66 presents the rice supply and demand projections for ECOWAS, presented separately to highlight the increasing importance of the region to the global rice economy.
- Table 67 summarizes the rice average yield per hectare by country.
- Table 68 presents the rice average per capita use by country.

Detailed Results on Global Rice Supply and Demand

- Over the projection period, India and PRC are projected to account for 26% of total global population growth, with a combined share in world population of 36% in 2013 and 35% by 2023. By sheer magnitude, the two countries remain the largest global rice economies with combined share of 45% of world area harvested, 51% of total milled rice production, 50% of total rice consumption, and 65% of world rice ending stocks.
- In comparison, the combined global shares of the next six largest rice countries of Indonesia, Bangladesh, Vietnam, Thailand, the Philippines and Myanmar are 34% in area harvested, 30% in production, 27% in consumption, and 18% in ending stocks over the same period. Thailand, with its recent PPP-related build-up, account for nearly half of this group's stocks.

Rice Export Supplies

- Figure 8 shows the world's top country rice exporters over the projection period. Despite Thailand's costly, unpopular, and controversial paddy pledging program, the country is projected to resume its strong presence in the global rice market over the next ten years. Reports indicate that Thailand is increasing its efforts on negotiating government-to-government rice deals to liquidate their excessive rice stockpile. While the new administration reportedly plans to liquidate the PPP stocks over the next three years, it is relatively cautious in releasing the PPP rice stocks into the market to avoid depressing the prices (USDA-FAS, 2013-2014).
- While the Thai government is expected to incur substantial financial losses in the short-term as it ships high-priced rice onto the global market at competitively low prices, the country is expected to recoup its global position as the top rice exporter over the baseline period--given its good infrastructural resources and concerted focus on developing and maintaining a strong presence in

the branded high quality rice. The popularity of the country’s “Thai Hom Mali”- branded Jasmine rice which is fragrant long grain rice, is strongly preferred by consumers in many nations.

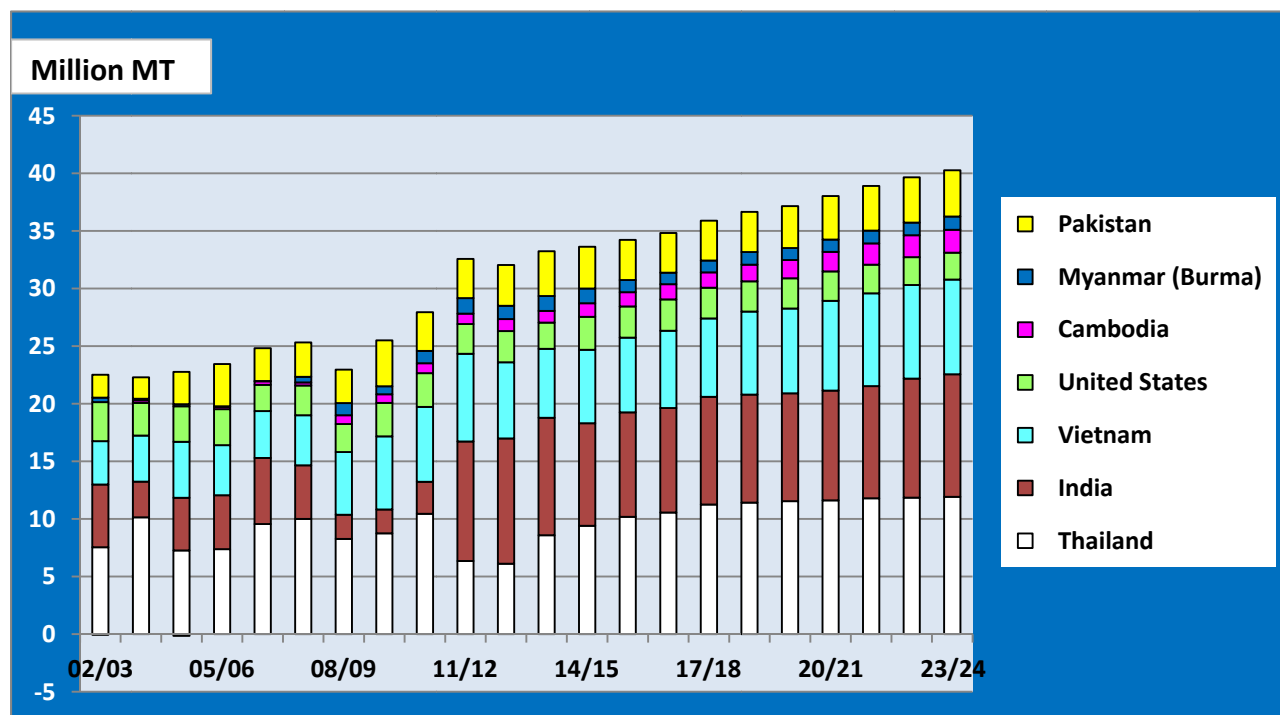


Figure 8 Top World Rice Exporting Countries, Historical and Projected.

India became the top rice exporter in 2011/12 and 2012/13 marketing years, and is projected to remain a leading rice exporter in 2013/14, with total shipments these years exceeding 10 mmt. However, India’s exports are projected to decline to just under 9.0 mmt in 2014/15 before increasing steadily to about the 10-mmt level by 2023, supported by relatively strong gains in yield. The country’s rice consumption will remain strong with population growing at 1.1% and per capita gaining 0.2% per year—and as the country implements its subsidized domestic rice consumption program and legislated in the National Food Security Bill which was signed into law on September 12, 2013 (USDA-FAS, 2013b). It creates an entitlement for eligible beneficiaries to receive 5 kilograms of rice, wheat or coarse grain (millet) at highly subsidized prices. This reportedly covers 50% of the urban and 75% of the rural populations which translate to about 820 million people (USDA-FAS, 2014).

India’s net exports in 2013/14 were 10.2 mmt, followed by Thailand with 8.6 mmt, and Vietnam with just under 6.0 mmt. Thailand is projected to start exceeding India’s exports in 2014/15 as the new administration embarks on releasing the PPP stocks into the international market, and retaking the rice export leadership position over the projection period (Table 1). Rice exports of the U.S. remain in the range of 2.3-2.8 mmt over the projection period, given only mild supply growth in both area and average yields, relatively strong consumption, and increasing competition from Asian exporters (Table 3).

Cambodia has strong potential as rice exporter in the years to come, with rice exports projected to expand steadily from 1.0 mmt in 2013 to nearly 2.0 mmt in 2023 as yield-based production growth exceeds that

of consumption. Myanmar is another country that has some potential with exports projected to be around 1.3 mmt in 2013 and 2014. Myanmar’s exports, however, are projected to remain relatively stagnant around 1.0-mmt level over the projection period, as consumption grows faster than production.

Global net rice exports reach 40.5 mmt in 2023, or a total growth of 8.7 mmt over the baseline period (2012-2023), or about 1.9% annually, of which nearly 66% of the growth is accounted for by Thailand, as it expands exports and regains dominance in global rice trade. By world regions, the top rice exporters are shown in Figure 9 and 10. ASEAN is a 10-country sub-regional group of Southeast Asian countries including Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam.

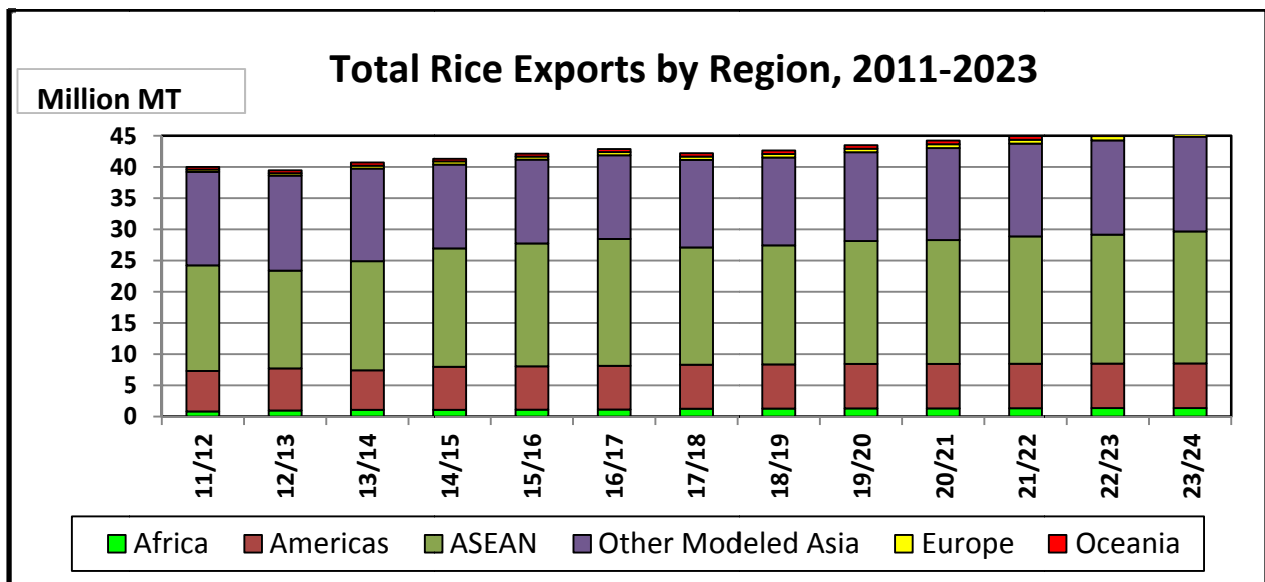


Figure 9 Net Rice Exports by World Regions, Historical and Projected.

The ASEAN region is expected to expand its global export share from 40% in 2012 to 46% by 2023.

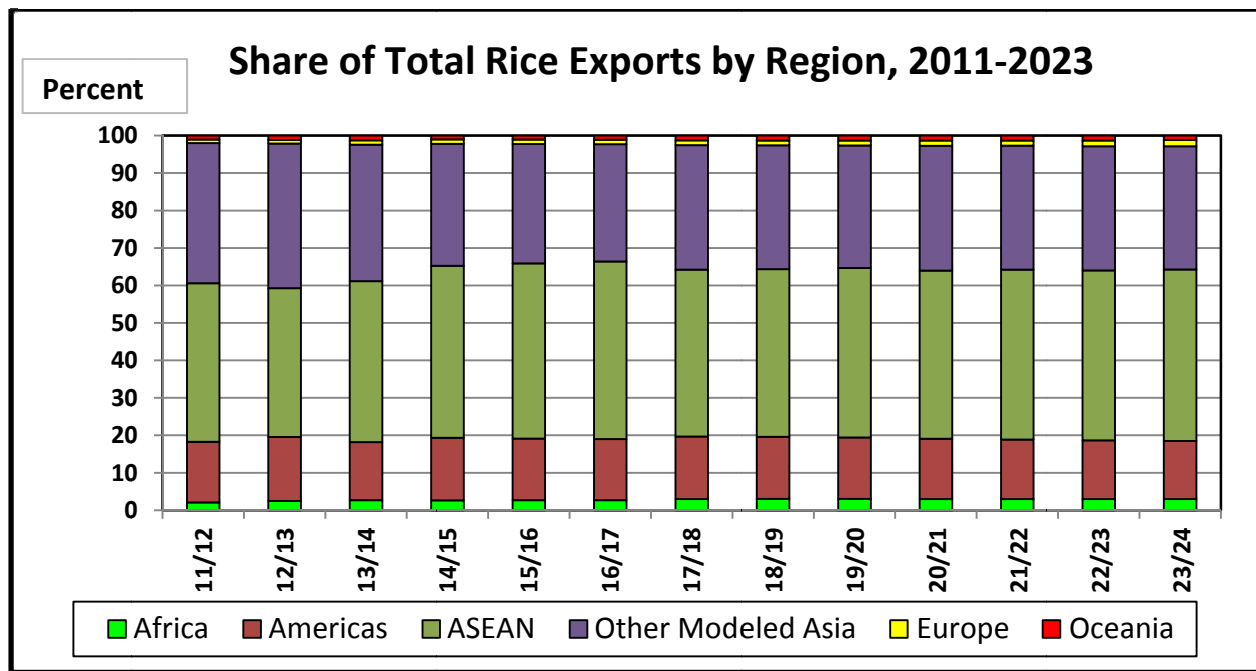


Figure 10 Shares of Total Rice Exports by World Regions, Historical and Projected.

Rice Import Demand

- World rice imports are dominated by 13 countries that account for 56% of total imports over the baseline period. They are Nigeria, PRC, Iran, Iraq, Saudi Arabia, Bangladesh, Senegal, Malaysia, Cote d’Ivoire, EU-28, the Philippines, South Africa, and Indonesia. Figure 11 shows the world’s top 8 country rice importers.

Global rice net imports are projected to grow by 8.7 mmt over the 2012-2023 period, reaching 40.5 mmt, of which 28% of the growth is projected to come from two major Asian importing countries of Bangladesh and Indonesia combined, 30% from the 15-member ECOWAS (Economic Community of West African States)², and 7% from the Middle East. These countries/regions account for a total of 65% share in projected expansion of global net imports. The U.S. total rice imports are projected to increase by 192 thousand mt (or 5.6 mil. cwt), equivalent to a growth of 2.0% per year.

² ECOWAS15-member countries include Cote D’Ivoire, Ghana, Guinea, Liberia, Mali, Nigeria, Senegal, Sierra Leone, Benin, Burkina-Faso, Gambia, Guinea-Bissau, Niger, Togo, and Cabo Verde.

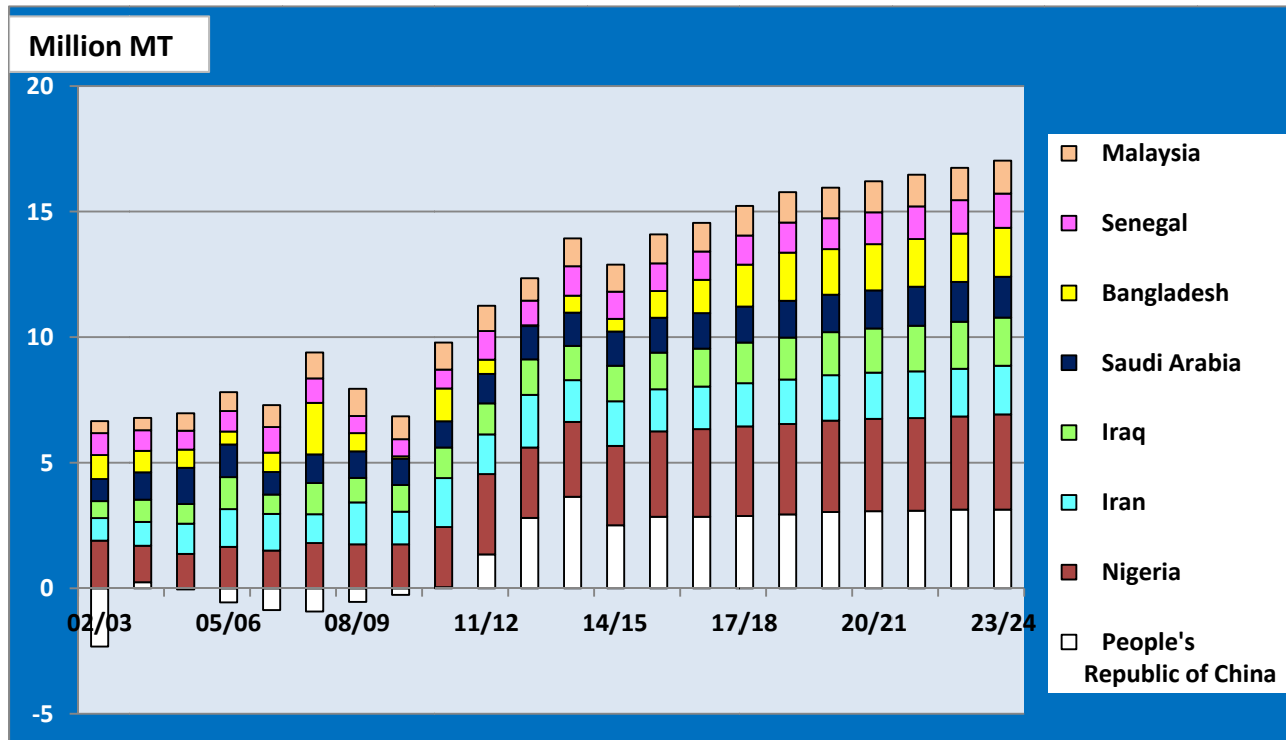


Figure 11 Net Rice Imports by Top Countries, Historical and Projected.

- By world regions, the top rice importers are shown in Figures 12 and 13.

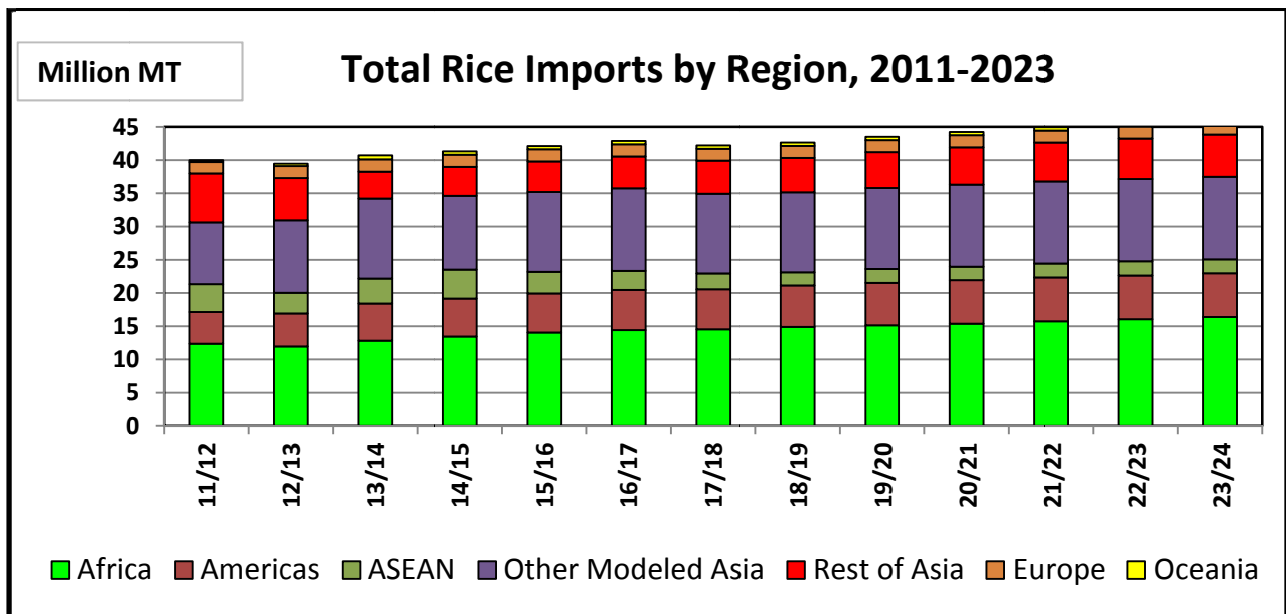


Figure 12 Total Rice Imports by World Regions, Historical and Projected.

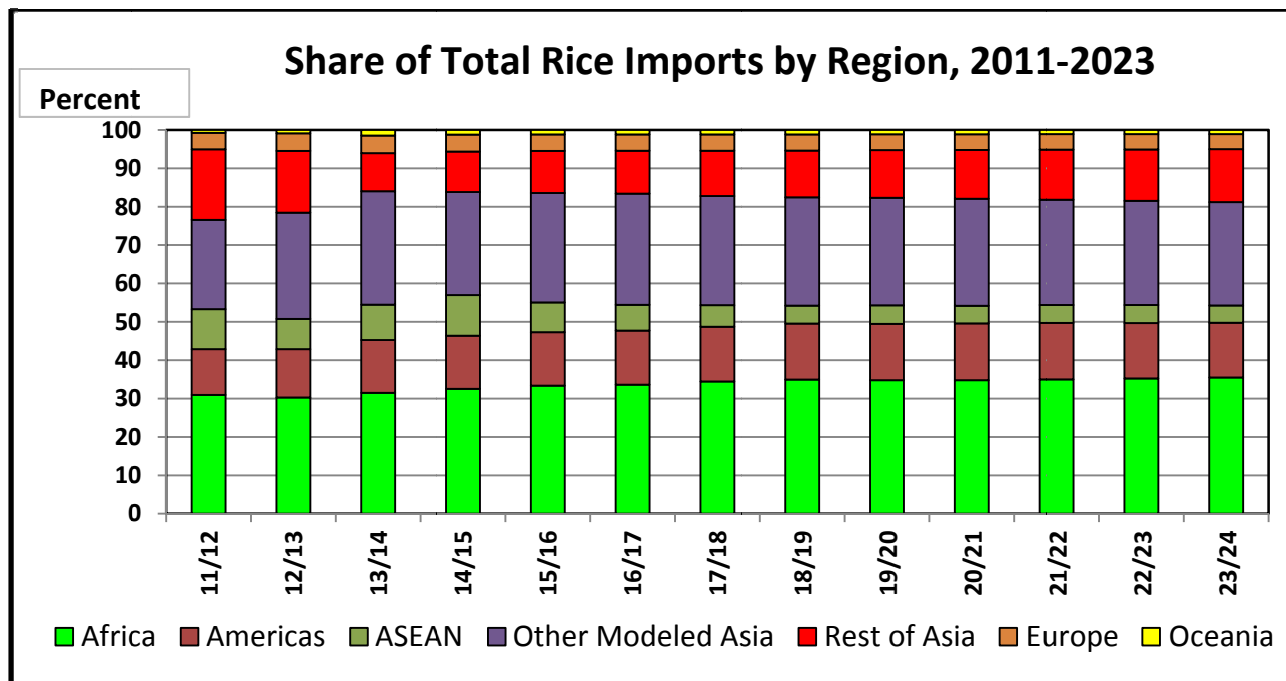


Figure 13 Shares of Total Rice Imports by World Regions, Historical and Projected.

Rice Harvested Area and Production

- The global rice major producers are shown in Figure 14. While the global rice harvested area will grow by nearly 2.9 million hectares on a net basis reaching 161.1 million hectares over the baseline period, some notable changes for a number of countries/region are behind this net figure. There is a total expansion of 2.3 million hectares of rice in the three countries of Bangladesh, India, and Pakistan; and a total expansion of 2.0 million hectares in ECOWAS. In contrast, the total rice area of the PRC is projected to decline by nearly 1.5 million hectares due to a shift to substitute crops and irrigation constraints.
- The U.S. rice harvested area declined by 8% in 2013 to 1.0 million hectares (2.47 million acres) from a year earlier due to heavy rains that prevented planting in the Delta but expanded to 1.23 million hectares (3.03 million acres) in 2014 supported by relatively higher prices and normal weather. However, over the rest of the projection period, U.S. rice harvested area is estimated to remain relatively flat at an average of 1.15 million hectares (2.85 million acres) due to water constraints and an increasingly competitive market environment.
- Other constraints to potential global rice expansion include competing uses of limited land and water; farm demographics—with farmers getting older and labor moving from farm to cities; uncertain calamities due climate change; changing consumer tastes towards healthy foods; and emerging environmental issues on rice carbon footprint.
- The global milled rice output is projected to grow by a total of 47.6 mmt, reaching 519.8 mmt, over the period 2012-2023. By volume, about 31% of the expected growth will come from India; 40% from the seven countries of Indonesia, Bangladesh, Vietnam, the Philippines, Cambodia,

PRC, and Pakistan combined; and 12% from ECOWAS. Total U.S. rice production is projected to increase by about 668 thousand mt (or 18.0 mil. cwt) over the same period due mainly to yield growth.

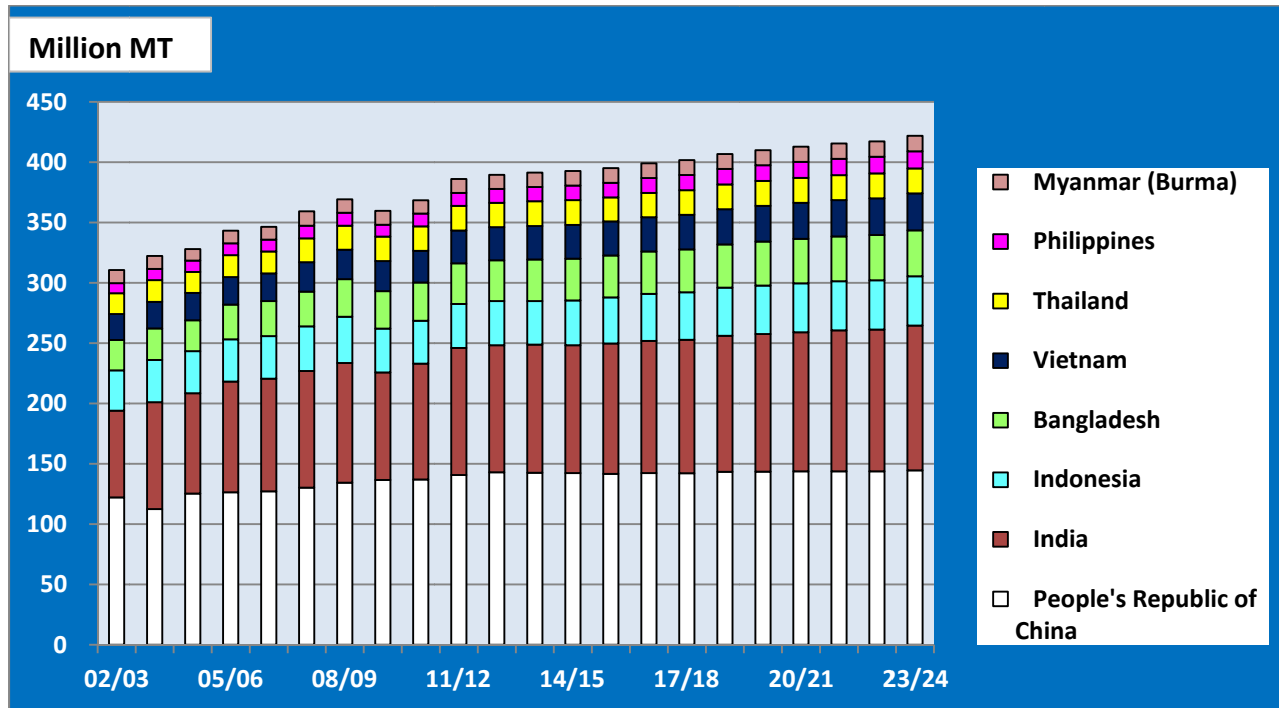


Figure 14 Top World Rice Producing Countries, Historical and Projected.

Rice Domestic Consumption

- Rice consumption is driven by income, population, and other demographic variables. Rising incomes dampen rice demand in some Asian countries where rice is considered an inferior good. Demographic trends also weaken rice demand as aging populations and increasing health consciousness shift preferences away from carbohydrates and towards protein-based diets.
- Over the projection period, global rice consumption will reach 519.4 mmt, growing by 56.0 mmt on a net basis—with nearly 28.1% of the growth accounted for by India; 28.2% by the five countries of Bangladesh, Indonesia, PRC, the Philippines, and Myanmar combined; and 15.5% by ECOWAS. The top world rice consuming countries are shown in Figure 15.
- While PRC's rice per capita use continues to decline by 0.36% per year, the country's population grows at 0.43% annually-- resulting in net growth in total rice consumption of 0.07% annually, reaching 146.3 mmt in 2023.
- U.S. rice total consumption increases by nearly 1.1 mmt (or 15.1 mil. cwt) over the same period, reaching 4.9 mmt (133.3 million cwt) in 2023. This is equivalent to an annual growth of 2.1%, of which 1.3% comes from per capita use and nearly 0.8% from population.

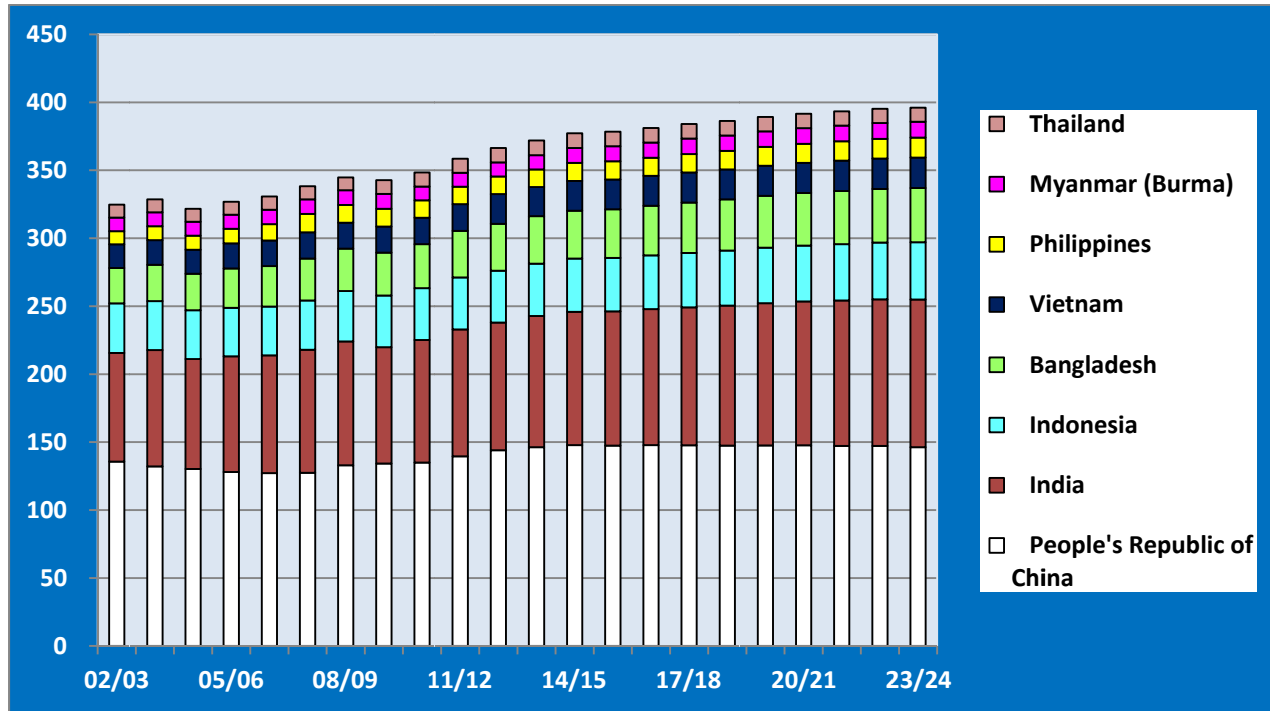


Figure 15 Top World rice consuming countries, Historical and Projected.

Rice Global Stocks

- Global rice stocks contracts by 26 mmt over the projection period, from 110 mmt in 2012 to 84 mmt in 2023, as growth in consumption outstrips growth in production during the period.
- Two countries are projected to account for 97% of this rice global stock decline, with PRC accounting for 53% as the country is expected to withdraw an average of 1.0 mmt annually from its stockpile as it maintains its price-driven imports during the baseline period. This makes sense as low-priced rice relative to domestic cost of production becomes more readily available in the international market largely through government-to-government transactions. Thailand, on the other hand, accounts for 44% of the total decline, as the country focuses on releasing its excessive PPP-accumulated rice stockpile into the global market. See Figure 16 for the world's leaders in rice stockholdings.

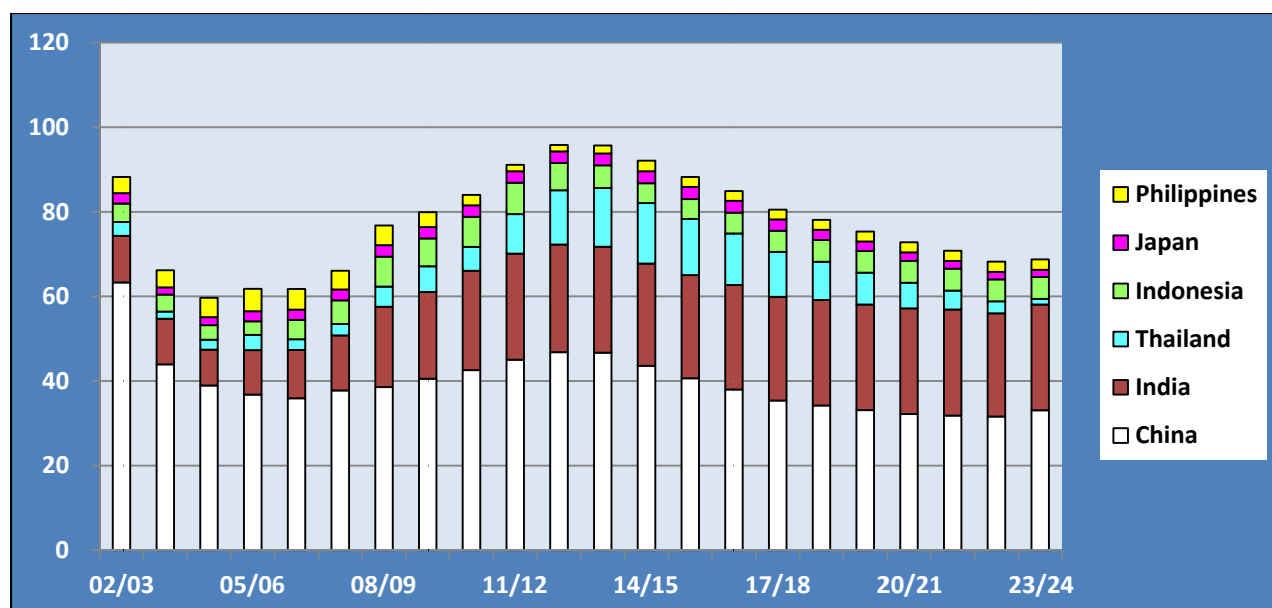


Figure 16 Top countries in rice ending stocks, Historical and Projected.

Rice Supply and Demand by World Region

- The summary results for the five world regions are presented in Tables 48-64. Three tables are associated with each region. The first one is the total for the region, which is the sum of individually-modeled countries in the region and the other countries in the region modeled as a group. Thus, the sum of the five regions covers the entire world rice economy.
- A more detailed look at the regional projections is useful as it provides a better understanding of the geographical dynamics and the relative importance of each region to the global rice economy.

Africa

- Table 48 shows that Africa’s total rice output is projected to grow by 3.33% per year, driven by both growth in area (1.73%) and yields (1.58%). This expected productivity improvement is supported by availability of increased research funding from institutions and NGOs, a more focused efforts by the Africa Rice Center and the International Rice Research Institute (IRRI), and a possible expanded distribution and adoption of improved rice varieties like the locally-developed New Rice for Africa (NERICA) cultivars. The region’s total rice consumption grows by 3.27% per year as population grows by 2.3% and per capita use by 0.95% annually. This consumption is supported by 2.70% growth in real per capita income³.

³ Real per capita income is computed by dividing total real gross domestic product by population.

- Table 49 presents the results for the group of individually-modeled African countries in AGRM. This group is expected to grow total rice production by 3.7% per year, as area and yields grow by 2.1% and 1.6%, respectively. Total consumption of this group gains 3.31% annually, driven by 2.25% growth in population, 1.04% growth in per capita use, and 2.85% growth in real per capita income.
- Table 50 shows that the “Other Africa” region (or the rest of African countries that are modeled as a group) expands its rice output by 1.77% per year, with 0.35% coming from growth in area and 1.42% from yield. Total consumption of this group expands at 3.11% per year, of which 2.37% comes from population growth and 0.73% from per capita use gain, supported by 2.45% gain in real per capita income.

Americas

- Total rice production of the Western Hemisphere (Table 51) grows at 1.01% per year which comes from 0.73% yield growth and area gain of 0.28% annually. Total consumption increases at 1.51% annually, a combined effect of 0.92% population growth and 0.59% gain in per capita use with 1.78% growth in real per capita income.
- The group of individually-modeled Western Hemisphere countries (Table 52) is projected to grow total rice output slightly by 0.87% per year, as area gains 0.34% and yields grow by 0.53%. Total rice consumption of this group gains 1.32% annually, with 0.84% contributed by population growth and 0.48% by per capita use as real per capita income gains 1.97% per year.
- Total rice production of the “Other Western Hemisphere” region modeled as a group (Table 53) increases by 1.40% per year, with 0.16% coming from area expansion and 1.25% from yield gain. Total consumption of this group grows at 1.88% per year, of which 1.23% comes from population growth and 0.64% from per capita use. Real per capita income contracts by 0.05% annually.

Asia

- Total rice production of Asia (Table 54) increases by 0.76% per year, as yield grows by 0.82% annually and area decreases marginally (-0.06%). The growth in total Asian consumption of 0.71% per year comes solely from population growth, as per capita use declines by nearly -0.18% annually. Rice is an inferior good in most Asian countries and the relatively strong projected growth of 4.10% in real per capita income has dampening effect on rice consumption.
- Similarly, the group of individually-modeled Asian countries (Table 55) is projected to grow total rice production by 0.76% annually, as yields increase by 0.83% and area harvested declines slightly by -0.07%. Total rice consumption of this group grows by 0.68% annually, all contributed

by population growth as per capita use declines marginally (-0.16%) with 4.17% annual gain in real per capita income.

- The net growth of total rice output of the “Other Asia” region modeled as a group (Table 56) is 0.69% annually, with area growing by 0.27% and yield gaining 0.42% per year. Total consumption of this group grows at 1.44% per year, of which 1.42% comes from population growth as per capita use is flat and real per capita income grows at 2.97% which is relatively slower than that of the group of modeled Asia countries.

Europe

- The total rice production of Europe (Table 57) grows at 1.59% per year of which 1.35% comes from yield growth and 0.53% from a slight gain in area. Total consumption increases slightly at 0.57%, almost solely from gain in per capita use, as population growth is relatively flat. Real per capita income is up 1.93% per year.
- The group of individually-modeled European countries (Table 58) is projected to grow total rice output slightly by 2.25% per year, as area increases by 0.84% and yields grow by 1.40% per year. Total consumption of this group gains 0.73% annually, with population and per capita use accounting for 0.20% and 0.53%, respectively. Real per capita income of this group grows at 1.63% per year.
- Total rice production of the “Other Europe” region modeled as a group (Table 59) grows slightly by 0.21% per year, as yield grows by 0.35% and harvested area contracts by -0.14%. Consumption of this group declines marginally with population. The real per capita income of this group grows strongly at 3.21% per year.

Oceania

- Tables 60 thru 62 show the results for Oceania which mainly consists of Australia. Total rice production expands by 1.06% per year, mainly from gain in area harvested. Total consumption grows 0.89% annually solely attributed to population growth as per capita use declines. Real per capita income grows at 1.41% annually.

World

- Tables 63 thru 65 present the sum of the five world regions discussed above.

ECOWAS

- Production is projected to grow by 5.06% per annum, with 2.38% contributed by harvested area and 2.62% by yield improvements (Table 66). Consumption, driven by population and income growth, increases by 3.77% annually; and net imports expand by 5.58% per year.

- Nigeria is the main player in the ECOWAS region's projected fast-growing rice industry over the baseline period. Nigeria accounts for 37% of the region's volume growth in rice imports, as the country's domestic use continues to exceed domestic supply. The country accounts for 54% of the region's gain in rice area harvested as the country's rice area grows by 3.1% annually. Nigeria contributes 40% of the region's rice output gain, owing to the country's 5.7% annual growth in production supported by the strong growth in both area (3.1%) and yield (2.6%) per year. Lastly, Nigeria accounts for 39% of the region's volume growth in consumption, as the country's consumption gains 3.9% annually with population growing at 2.8% and per capita use by 1.1% per year.

Results of Stochastic Baseline Analysis

Detailed Results of the Stochastic Baseline Analysis

The detailed results of the stochastic analyses for selected variables and countries are presented in Figures 17a thru 33. In order to show the direction and dispersion of the stochastic outcome distribution, four selected outcome items (stochastic average, 10th percentile, 90th percentile, and the coefficient of variation) for selected variables are presented. Intuitively, the gap between the two percentiles (10th and 90th) indicates volatility or risk. Widening indicates increased volatility and narrowing indicates decreased volatility.

Another measure of dispersion of data points in a data series, such as each of the resulting probability distributions in this study, is the coefficient of variation (C.V.) which shows the extent of variability in relation to the mean. It is computed by dividing the standard deviation by the mean. Lower C.V. indicates more stability, i.e., less risk.

The information projected in each one of the charts is similar in principle. Hence, for space consideration only one representative chart (Figure 17) will be discussed--which can then be used as a pattern in understanding the rest of the charts.

Figure 17 shows the long grain rice international reference price. For 2014, while the deterministic mean price is \$410 per mt (Table 1), the stochastic distribution indicates that 10% of the time the average price will be higher than \$500 per mt and lower than \$382 per mt 10% of the time. The gap between the two percentiles is \$118; and the gap varies across the estimation period. The computed C.V. for 2014 is 11%.

Going forward to 2023, while the deterministic mean price is \$422 per mt (Table 1), the stochastic distribution indicates that 10% of the time the average price will be higher than \$528 per mt and lower than \$398 per mt 10% of the time. This time the gap between the two percentiles is wider at \$130, with C.V. of 12%.

Again, a similar analysis can be made for the rest of the stochastic results for the other selected variables presented. The same principle holds—with the difference lying only with varying units and absolute numbers. This feature of the stochastic analysis provides an advantage as it indicates how the possible outcomes are distributed, thus providing additional information on risk and uncertainty which is an innate characteristic of agricultural commodity enterprises and markets, such as that of rice. Thus, the stochastic analysis complements the basic information generated by the deterministic analysis by providing a better understanding of the dynamics of the global rice market.

Conclusions and Summary

- The general assessment of the global rice economy in this baseline over the next decade indicates that, under assumed normal average weather conditions, the world is projected to face abundant rice supplies due to current surpluses; increased productivity and use of modern growing and processing technologies; and focus on self-sufficiency in rice---all pointing to a most likely environment of relatively low and narrow-ranged average global rice prices.
- As in any other enterprise, however, there are risks involved in the rice industry due to the uncertainties of weather, domestic policies, political developments, and other unexpected events. Actual market outcomes usually deviate from average estimates hence a stochastic analysis is included in this report which indicate the probable upper and lower bounds (confidence intervals) of future possible distribution of outcomes.
- The information in this report can serve as useful guide for various stakeholders in the rice industry.

Estimates of the Deterministic Baseline Analysis

Tables and Charts of Rice Supply, Utilization and Net Trade, 2013-2023

Table 1 World Rice Net Trade by Country and International Reference Prices, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
Net Exporters	(Thousand Metric Tons)										
Argentina	607	604	627	625	639	671	700	726	772	812	858
Australia	350	248	269	301	319	344	360	371	374	374	325
Cambodia	1,004	1,176	1,241	1,314	1,324	1,444	1,588	1,697	1,851	1,912	1,978
People's Republic of China	-3,643	-2,507	-2,844	-2,848	-2,879	-2,939	-3,034	-3,067	-3,086	-3,129	-3,129
Egypt	788	790	825	849	929	962	995	995	1,006	1,008	1,018
India	10,200	8,912	9,065	9,058	9,344	9,374	9,366	9,531	9,728	10,331	10,637
Myanmar (Burma)	1,295	1,278	1,054	1,005	1,029	1,102	1,047	1,069	1,103	1,094	1,160
Pakistan	3,885	3,629	3,479	3,432	3,465	3,487	3,634	3,779	3,873	3,923	4,010
Thailand	8,584	9,400	10,188	10,563	11,252	11,422	11,541	11,610	11,798	11,849	11,918
United States	2,281	2,857	2,701	2,725	2,664	2,619	2,615	2,561	2,485	2,419	2,337
Uruguay	895	940	983	1,014	1,036	1,055	1,081	1,095	1,107	1,124	1,151
Vietnam	5,981	6,375	6,488	6,715	6,812	7,207	7,362	7,785	8,058	8,119	8,220
Total Net Exports *	32,227	33,701	34,075	34,752	35,935	36,749	37,255	38,153	39,068	39,835	40,483
Net Importers											
Bangladesh	678	500	1,065	1,330	1,669	1,919	1,818	1,841	1,900	1,920	1,952
Brazil	-122	-253	-307	-306	-335	-368	-364	-315	-284	-269	-239
Brunei Darussalam	40	44	46	48	49	50	51	52	53	54	55
Cameroon	543	514	510	518	527	527	539	550	563	579	590
Canada	355	375	420	436	446	458	468	479	489	498	511
China - Hong Kong	427	437	450	455	458	462	467	473	477	481	493
Colombia	325	361	349	394	416	433	440	444	440	446	444
Cote d'Ivoire	1,097	1,170	1,209	1,184	1,146	1,088	1,086	1,078	1,071	1,059	1,054
European Union-28	1,092	1,081	1,068	1,067	1,057	1,052	1,047	1,031	1,021	1,015	986
Ghana	595	664	688	696	702	710	716	727	739	749	764
Guinea	221	192	212	219	227	204	219	215	242	244	253
Indonesia	1,352	1,520	1,088	700	807	708	585	621	866	1,062	1,193
Iran	1,661	1,773	1,680	1,691	1,719	1,773	1,813	1,837	1,857	1,902	1,940
Iraq	1,361	1,420	1,456	1,512	1,613	1,668	1,712	1,761	1,817	1,869	1,920
Japan	482	482	482	482	482	482	482	482	482	482	482

Kenya	358	428	482	510	546	558	610	659	709	772	821
Lao PDR	-23	-47	-44	-66	-94	-125	-143	-164	-194	-224	-233
Liberia	305	330	340	348	372	379	397	411	427	451	464
Malaysia	1,108	1,079	1,150	1,142	1,179	1,211	1,216	1,237	1,261	1,286	1,313
Mali	149	135	130	120	89	48	28	29	43	29	38
Mexico	726	758	760	776	796	816	836	857	888	897	899
Mozambique	500	531	540	557	580	586	609	636	664	706	734
Nigeria	2,983	3,163	3,402	3,489	3,570	3,602	3,639	3,679	3,693	3,710	3,792
Philippines	1,450	1,784	1,126	1,137	1,046	844	837	751	687	650	550
Saudi Arabia	1,327	1,364	1,390	1,412	1,439	1,463	1,488	1,518	1,554	1,590	1,619
Senegal	1,168	1,081	1,103	1,125	1,156	1,198	1,229	1,264	1,298	1,332	1,360
Sierra Leone	220	216	229	254	282	286	295	295	290	293	275
Singapore	305	317	318	321	324	326	328	331	331	331	330
South Africa	910	943	930	932	932	947	941	958	967	980	994
South Korea	410	409	409	409	409	409	409	409	409	409	409
Taiwan	124	115	115	115	115	115	115	115	115	115	115
Tanzania	170	199	212	236	269	291	323	364	409	480	542
Turkey	275	316	294	301	308	318	333	344	353	367	379
Other Africa	3,242	3,512	3,711	3,864	4,032	4,311	4,432	4,607	4,655	4,663	4,650
Other Americas	1,771	1,990	2,015	2,113	2,120	2,318	2,359	2,369	2,348	2,212	2,150
Other Asia	2,812	3,103	3,283	3,401	3,565	3,674	3,774	3,955	4,044	4,166	4,166
Other Europe	300	240	240	240	230	223	224	228	224	223	217
Other Oceania	431	331	328	327	326	326	327	328	330	332	335
Ecowas 7	1,234	1,234	1,329	1,430	1,545	1,666	1,788	1,920	2,059	2,201	2,347
Residual	-137	-109	-134	-168	-183	-203	-218	-226	-230	-229	-181
Total Net Imports	32,227	33,701	34,075	34,752	35,935	36,749	37,255	38,153	39,068	39,835	40,483

Prices

(U.S. Dollars per Metric Ton)

International Rice Reference Price	409	410	404	407	409	416	416	410	413	414	422
U.S. FOB Gulf Ports	603	568	563	555	548	548	542	532	529	522	520
U.S. No. 2 Medium FOB CA	816	837	853	839	800	798	801	804	810	815	830

*Total net exports are the sum of all positive net exports and negative net imports.

Table 2 World Rice Supply, Utilization, Total Trade and Stocks-to Use, 2013-2023.

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	161,169	160,956	160,436	160,476	160,583	160,753	161,021	161,062	161,157	161,111	161,115
	(Metric Tons per Hectare)										
Yield	2.95	2.98	3.01	3.04	3.06	3.10	3.12	3.15	3.17	3.19	3.23
	(Thousand Metric Tons)										
Production	476,079	480,132	483,054	487,916	491,720	498,113	502,719	506,952	510,808	514,028	519,801
Beginning Stocks	109,894	110,433	106,941	103,252	99,940	95,460	93,266	90,770	88,176	85,984	83,274
Domestic Supply	585,973	590,564	589,995	591,168	591,659	593,573	595,985	597,722	598,984	600,012	603,076
Consumption	475,677	483,731	486,877	491,396	496,382	500,510	505,433	509,773	513,231	516,967	519,367
Ending Stocks	110,433	106,941	103,252	99,940	95,460	93,266	90,770	88,176	85,984	83,274	83,891
Domestic Use	586,110	590,673	590,129	591,336	591,842	593,776	596,203	597,949	599,215	600,242	603,257
Total Trade	40,781	41,345	42,158	42,886	44,176	45,060	45,621	46,581	47,539	48,349	49,023
	(Percent)										
Stocks-to-Use Ratio	23.22	22.11	21.21	20.34	19.23	18.63	17.96	17.30	16.75	16.11	16.15

Table 3 U.S. Rice Supply, Utilization, Net Trade and Farm Prices, 2013-2023.

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	999	1,225	1,171	1,168	1,168	1,168	1,165	1,159	1,136	1,124	1,114
	(Metric Tons per Hectare)										
Yield	6.12	6.05	6.07	6.10	6.13	6.15	6.18	6.20	6.23	6.26	6.29
	(Thousand Metric Tons)										
Production	6,115	7,403	7,110	7,124	7,153	7,179	7,195	7,186	7,074	7,030	7,004
Beginning Stocks	1,156	1,057	1,285	1,366	1,377	1,327	1,290	1,204	1,120	970	759
Domestic Supply	7,271	8,460	8,395	8,490	8,530	8,507	8,485	8,390	8,194	7,999	7,764
Consumption	3,933	4,318	4,327	4,389	4,538	4,598	4,666	4,708	4,739	4,821	4,884
Ending Stocks	1,057	1,285	1,366	1,377	1,327	1,290	1,204	1,120	970	759	543
Domestic Use	4,990	5,603	5,693	5,765	5,866	5,887	5,870	5,829	5,709	5,581	5,426
Net Trade	2,281	2,857	2,701	2,725	2,664	2,619	2,615	2,561	2,485	2,419	2,337
U.S. Rice Farm Prices	(U.S. Dollars per Hundredweight)										
Season Average Farm Price	15.90	14.09	13.66	13.50	13.37	13.51	13.35	13.23	13.24	13.24	13.58
Long Grain Farm Price	15.40	12.68	12.44	12.27	12.12	12.39	12.21	12.06	12.05	12.05	12.48
Medium Grain Farm Price	17.80	18.37	17.11	16.87	16.76	16.53	16.39	16.36	16.33	16.29	16.34

Table 4 Argentina Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	242	241	241	242	245	250	256	261	267	273	279
					(Metric Tons per Hectare)						
Yield	4.25	4.30	4.38	4.44	4.51	4.55	4.59	4.63	4.70	4.77	4.84
					(Thousand Metric Tons)						
Production	1,027	1,037	1,056	1,076	1,104	1,138	1,174	1,207	1,255	1,304	1,352
Beginning Stocks	227	212	204	189	192	204	212	222	233	238	247
Domestic Supply	1,254	1,249	1,260	1,265	1,296	1,342	1,386	1,429	1,487	1,542	1,599
Consumption	435	441	444	448	454	458	464	471	477	483	489
Ending Stocks	212	204	189	192	204	212	222	233	238	247	252
Domestic Use	647	645	633	640	657	670	686	703	715	730	740
Net Trade	607	604	627	625	639	671	700	726	772	812	858

Table 5 Australia Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	81	73	91	99	102	102	102	101	101	100	100
					(Metric Tons per Hectare)						
Yield	7.31	6.97	7.00	7.03	7.09	7.11	7.11	7.12	7.16	7.17	7.18
					(Thousand Metric Tons)						
Production	594	511	635	694	726	728	725	722	721	718	715
Beginning Stocks	231	125	40	53	84	119	125	107	82	53	22
Domestic Supply	825	636	675	747	810	847	850	829	803	772	736
Consumption	350	348	352	362	372	378	384	376	376	376	378
Ending Stocks	125	40	53	84	119	125	107	82	53	22	34
Domestic Use	475	388	406	446	491	504	490	458	429	398	411
Net Trade	350	248	269	301	319	344	360	371	374	374	325

Table 6 Bangladesh Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	11,770	11,832	11,874	11,921	11,942	12,000	12,077	12,091	12,104	12,106	12,146
	(Metric Tons per Hectare)										
Yield	2.92	2.93	2.93	2.95	2.97	2.99	3.02	3.05	3.07	3.10	3.12
	(Thousand Metric Tons)										
Production	34,390	34,652	34,769	35,111	35,435	35,855	36,439	36,825	37,174	37,560	37,956
Beginning Stocks	696	864	785	796	809	822	835	845	853	861	869
Domestic Supply	35,086	35,516	35,554	35,907	36,244	36,677	37,275	37,670	38,028	38,422	38,825
Consumption	34,900	35,231	35,823	36,429	37,091	37,760	38,247	38,658	39,067	39,473	39,899
Ending Stocks	864	785	796	809	822	835	845	853	861	869	878
Domestic Use	35,764	36,016	36,619	37,237	37,913	38,595	39,092	39,511	39,928	40,342	40,777
Net Trade	-678	-500	-1,065	-1,330	-1,669	-1,919	-1,818	-1,841	-1,900	-1,920	-1,952

Table 7 Brazil Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	2,400	2,444	2,431	2,427	2,432	2,436	2,441	2,443	2,446	2,447	2,451
	(Metric Tons per Hectare)										
Yield	3.40	3.41	3.43	3.43	3.45	3.47	3.48	3.49	3.50	3.51	3.51
	(Thousand Metric Tons)										
Production	8,158	8,331	8,326	8,332	8,400	8,460	8,499	8,525	8,564	8,583	8,615
Beginning Stocks	528	681	779	813	827	834	839	838	833	829	826
Domestic Supply	8,686	9,011	9,105	9,145	9,227	9,294	9,338	9,363	9,397	9,412	9,441
Consumption	7,884	7,979	7,985	8,011	8,059	8,087	8,136	8,215	8,284	8,317	8,377
Ending Stocks	681	779	813	827	834	839	838	833	829	826	824
Domestic Use	8,564	8,758	8,798	8,839	8,893	8,926	8,974	9,048	9,113	9,143	9,201
Net Trade	122	253	307	306	335	368	364	315	284	269	239

Table 8 Brunei Darussalam Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	5	5	5	5	5	5	5	5	5	5	5
	(Metric Tons per Hectare)										
Yield	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
	(Thousand Metric Tons)										
Production	1	1	1	1	1	1	1	1	1	1	1
Beginning Stocks	0	0	0	0	0	0	0	0	0	0	0
Domestic Supply	1	1	1	1	1	1	1	1	1	1	1
Consumption	41	45	47	49	50	51	52	53	54	55	56
Ending Stocks	0	0	0	0	0	0	0	0	0	0	0
Domestic Use	41	45	47	49	50	51	52	53	54	55	56
Net Trade	-40	-44	-46	-48	-49	-50	-51	-52	-53	-54	-55

Table 9 Cambodia Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	2,974	3,020	3,016	2,987	2,968	2,979	2,986	2,998	3,000	2,996	2,999
	(Metric Tons per Hectare)										
Yield	1.59	1.63	1.68	1.75	1.79	1.85	1.92	1.97	2.05	2.10	2.14
	(Thousand Metric Tons)										
Production	4,729	4,916	5,067	5,218	5,308	5,507	5,731	5,912	6,137	6,292	6,425
Beginning Stocks	221	295	299	302	305	308	311	314	317	320	323
Domestic Supply	4,950	5,211	5,366	5,520	5,613	5,815	6,042	6,226	6,454	6,611	6,748
Consumption	3,650	3,737	3,823	3,901	3,981	4,061	4,140	4,212	4,284	4,376	4,444
Ending Stocks	295	299	302	305	308	311	314	317	320	323	326
Domestic Use	3,946	4,036	4,125	4,206	4,289	4,372	4,455	4,529	4,603	4,700	4,770
Net Trade	1,004	1,176	1,241	1,314	1,324	1,444	1,588	1,697	1,851	1,912	1,978

Table 10 Cameroon Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	140	137	141	143	144	148	152	154	157	160	165
	(Metric Tons per Hectare)										
Yield	0.76	0.97	1.07	1.08	1.08	1.09	1.08	1.08	1.09	1.09	1.09
	(Thousand Metric Tons)										
Production	107	133	151	154	156	161	164	167	170	175	180
Beginning Stocks	0	24	25	25	26	26	26	27	28	28	29
Domestic Supply	107	157	176	180	182	187	190	194	198	203	209
Consumption	626	646	660	672	683	688	702	716	732	753	770
Ending Stocks	24	25	25	26	26	26	27	28	28	29	30
Domestic Use	650	671	686	698	709	714	729	743	760	782	799
Net Trade	-543	-514	-510	-518	-527	-527	-539	-550	-563	-579	-590

Table 11 Canada Rice Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Metric Tons)										
Consumption	355	375	420	436	446	458	468	479	489	498	511
Ending Stocks	0	0	0	0	0	0	0	0	0	0	0
Domestic Use	355	375	420	436	446	458	468	479	489	498	511
Net Trade	-355	-375	-420	-436	-446	-458	-468	-479	-489	-498	-511

Table 12 People's Republic of China Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	30,312	30,015	29,666	29,486	29,390	29,302	29,159	29,058	28,915	28,743	28,616
	(Metric Tons per Hectare)										
Yield	4.70	4.74	4.77	4.83	4.84	4.89	4.92	4.95	4.97	5.00	5.05
	(Thousand Metric Tons)										
Production	142,530	142,239	141,615	142,274	142,199	143,402	143,471	143,715	143,789	143,815	144,603
Beginning Stocks	46,826	46,699	43,596	40,639	37,983	35,385	34,223	33,117	32,213	31,830	31,604
Domestic Supply	189,356	188,938	185,211	182,913	180,182	178,787	177,695	176,832	176,002	175,645	176,206
Consumption	146,300	147,848	147,416	147,778	147,676	147,502	147,612	147,685	147,258	147,171	146,250
Ending Stocks	46,699	43,596	40,639	37,983	35,385	34,223	33,117	32,213	31,830	31,604	33,086
Domestic Use	192,999	191,445	188,055	185,762	183,061	181,725	180,729	179,898	179,089	178,775	179,335
Net Trade	-3,643	-2,507	-2,844	-2,848	-2,879	-2,939	-3,034	-3,067	-3,086	-3,129	-3,129

Table 13 Colombia Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	450	453	456	457	458	459	460	460	460	460	460
	(Metric Tons per Hectare)										
Yield	2.91	3.00	3.01	3.02	3.04	3.05	3.07	3.08	3.09	3.11	3.12
	(Thousand Metric Tons)										
Production	1,310	1,358	1,372	1,382	1,393	1,402	1,410	1,416	1,422	1,429	1,435
Beginning Stocks	85	120	168	235	254	249	228	202	175	154	129
Domestic Supply	1,395	1,478	1,540	1,617	1,647	1,651	1,638	1,618	1,597	1,583	1,564
Consumption	1,600	1,671	1,654	1,756	1,813	1,855	1,877	1,888	1,883	1,900	1,901
Ending Stocks	120	168	235	254	249	228	202	175	154	129	107
Domestic Use	1,720	1,839	1,889	2,010	2,063	2,083	2,078	2,062	2,037	2,029	2,008
Net Trade	-325	-361	-349	-394	-416	-433	-440	-444	-440	-446	-444

Table 14 Cote D'Ivoire Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	450	453	463	470	483	499	523	541	556	574	581
					(Metric Tons per Hectare)						
Yield	1.16	1.18	1.24	1.34	1.45	1.55	1.59	1.63	1.67	1.71	1.75
					(Thousand Metric Tons)						
Production	520	535	573	630	699	774	830	883	926	982	1,015
Beginning Stocks	181	166	170	184	191	198	202	211	220	228	237
Domestic Supply	701	701	743	814	890	972	1,031	1,094	1,146	1,210	1,251
Consumption	1,632	1,701	1,768	1,807	1,838	1,859	1,906	1,952	1,990	2,033	2,063
Ending Stocks	166	170	184	191	198	202	211	220	228	237	243
Domestic Use	1,798	1,871	1,952	1,998	2,036	2,060	2,117	2,172	2,218	2,269	2,306
Net Trade	-1,097	-1,170	-1,209	-1,184	-1,146	-1,088	-1,086	-1,078	-1,071	-1,059	-1,054

Table 15 Egypt Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	790	767	766	762	759	761	763	763	761	759	764
					(Metric Tons per Hectare)						
Yield	6.18	6.39	6.49	6.60	6.75	6.86	6.88	6.94	7.00	7.06	7.12
					(Thousand Metric Tons)						
Production	4,880	4,904	4,973	5,031	5,123	5,220	5,249	5,296	5,326	5,355	5,439
Beginning Stocks	427	528	634	743	843	902	989	1,013	1,024	1,005	953
Domestic Supply	5,307	5,432	5,607	5,774	5,966	6,122	6,237	6,309	6,350	6,361	6,393
Consumption	3,991	4,008	4,039	4,081	4,135	4,171	4,229	4,289	4,339	4,400	4,451
Ending Stocks	528	634	743	843	902	989	1,013	1,024	1,005	953	924
Domestic Use	4,519	4,642	4,782	4,925	5,037	5,160	5,242	5,313	5,345	5,353	5,375
Net Trade	788	790	825	849	929	962	995	995	1,006	1,008	1,018

Table 16 EU-28 Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	438	443	452	459	467	470	472	475	478	480	480
					(Metric Tons per Hectare)						
Yield	4.44	4.66	4.73	4.81	4.88	4.94	5.01	5.08	5.14	5.21	5.25
					(Thousand Metric Tons)						
Production	1,944	2,063	2,138	2,208	2,280	2,323	2,366	2,411	2,456	2,500	2,517
Beginning Stocks	1,146	973	916	885	881	915	960	1,016	1,068	1,129	1,203
Domestic Supply	3,090	3,036	3,053	3,093	3,161	3,237	3,326	3,427	3,524	3,629	3,720
Consumption	3,209	3,202	3,237	3,278	3,304	3,329	3,357	3,390	3,416	3,441	3,463
Ending Stocks	973	916	885	881	915	960	1,016	1,068	1,129	1,203	1,244
Domestic Use	4,182	4,117	4,121	4,159	4,218	4,289	4,373	4,458	4,545	4,645	4,707
Net Trade	-1,092	-1,081	-1,068	-1,067	-1,057	-1,052	-1,047	-1,031	-1,021	-1,015	-986

Table 17 Ghana Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	200	201	213	223	235	244	254	263	271	278	286
					(Metric Tons per Hectare)						
Yield	1.76	1.72	1.65	1.67	1.70	1.72	1.75	1.75	1.78	1.80	1.82
					(Thousand Metric Tons)						
Production	352	346	352	373	399	421	444	461	481	501	520
Beginning Stocks	172	145	151	157	163	169	175	181	186	193	199
Domestic Supply	524	491	503	529	561	590	618	642	667	693	719
Consumption	974	1,004	1,034	1,063	1,095	1,124	1,154	1,182	1,214	1,244	1,277
Ending Stocks	145	151	157	163	169	175	181	186	193	199	205
Domestic Use	1,119	1,155	1,190	1,225	1,264	1,299	1,335	1,368	1,406	1,442	1,482
Net Trade	-595	-664	-688	-696	-702	-710	-716	-727	-739	-749	-764

Table 18 Guinea Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	1,070	1,062	1,064	1,067	1,073	1,075	1,090	1,096	1,102	1,109	1,116
					(Metric Tons per Hectare)						
Yield	1.26	1.38	1.42	1.46	1.50	1.55	1.58	1.62	1.65	1.69	1.72
					(Thousand Metric Tons)						
Production	1,350	1,471	1,508	1,555	1,607	1,662	1,722	1,780	1,820	1,879	1,922
Beginning Stocks	145	131	134	136	138	140	142	145	147	149	152
Domestic Supply	1,495	1,602	1,641	1,691	1,745	1,803	1,864	1,924	1,966	2,028	2,074
Consumption	1,586	1,660	1,718	1,772	1,831	1,865	1,938	1,993	2,059	2,121	2,173
Ending Stocks	131	134	136	138	140	142	145	147	149	152	154
Domestic Use	1,716	1,794	1,854	1,910	1,971	2,006	2,083	2,139	2,208	2,273	2,326
Net Trade	-221	-192	-212	-219	-227	-204	-219	-215	-242	-244	-253

Table 19 China-Hong Kong Rice Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Metric Tons)						
Consumption	427	437	450	455	458	462	467	473	477	481	493
Ending Stocks	0	0	0	0	0	0	0	0	0	0	0
Domestic Use	427	437	450	455	458	462	467	473	477	481	493
Net Trade	-427	-437	-450	-455	-458	-462	-467	-473	-477	-481	-493

Table 20 India Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	43,940	43,352	43,445	43,497	43,490	43,514	43,609	43,587	43,664	43,652	43,597
	(Metric Tons per Hectare)										
Yield	2.42	2.45	2.49	2.52	2.54	2.59	2.61	2.65	2.68	2.69	2.75
	(Thousand Metric Tons)										
Production	106,290	106,056	108,080	109,548	110,583	112,737	114,005	115,315	116,815	117,487	119,981
Beginning Stocks	25,440	25,026	24,166	24,384	24,727	24,514	24,916	24,969	24,959	25,092	24,395
Domestic Supply	131,730	131,082	132,246	133,932	135,310	137,252	138,921	140,284	141,774	142,579	144,376
Consumption	96,504	98,004	98,798	100,148	101,451	102,962	104,586	105,794	106,954	107,852	108,730
Ending Stocks	25,026	24,166	24,384	24,727	24,514	24,916	24,969	24,959	25,092	24,395	25,010
Domestic Use	121,530	122,170	123,182	124,874	125,966	127,878	129,555	130,753	132,046	132,247	133,739
Net Trade	10,200	8,912	9,065	9,058	9,344	9,374	9,366	9,531	9,728	10,331	10,637

Table 21 Indonesia Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	12,000	12,100	12,150	12,201	12,178	12,121	12,105	12,072	12,019	11,961	11,925
	(Metric Tons per Hectare)										
Yield	3.01	3.06	3.15	3.20	3.24	3.29	3.33	3.36	3.38	3.41	3.43
	(Thousand Metric Tons)										
Production	36,074	37,050	38,236	39,019	39,409	39,820	40,280	40,561	40,655	40,728	40,891
Beginning Stocks	6,476	5,377	4,706	4,708	4,883	5,027	5,113	5,157	5,177	5,185	5,189
Domestic Supply	42,550	42,427	42,942	43,727	44,293	44,847	45,393	45,718	45,832	45,913	46,079
Consumption	38,526	39,241	39,322	39,543	40,072	40,442	40,821	41,162	41,513	41,786	42,083
Ending Stocks	5,377	4,706	4,708	4,883	5,027	5,113	5,157	5,177	5,185	5,189	5,190
Domestic Use	43,902	43,947	44,029	44,427	45,100	45,555	45,978	46,339	46,698	46,975	47,272
Net Trade	-1,352	-1,520	-1,088	-700	-807	-708	-585	-621	-866	-1,062	-1,193

Table 22 Iran Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	590	600	606	606	607	609	612	613	614	616	618
					(Metric Tons per Hectare)						
Yield	2.80	2.83	2.86	2.88	2.91	2.93	2.96	2.98	3.01	3.03	3.06
					(Thousand Metric Tons)						
Production	1,650	1,699	1,732	1,746	1,764	1,785	1,809	1,829	1,847	1,868	1,888
Beginning Stocks	925	826	785	671	611	582	576	580	589	599	613
Domestic Supply	2,575	2,525	2,517	2,418	2,375	2,367	2,385	2,410	2,436	2,467	2,501
Consumption	3,410	3,513	3,526	3,499	3,512	3,564	3,617	3,658	3,695	3,756	3,813
Ending Stocks	826	785	671	611	582	576	580	589	599	613	628
Domestic Use	4,236	4,298	4,198	4,109	4,094	4,139	4,197	4,247	4,294	4,368	4,441
Net Trade	-1,661	-1,773	-1,680	-1,691	-1,719	-1,773	-1,813	-1,837	-1,857	-1,902	-1,940

Table 23 Iraq Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	82	80	76	74	73	75	78	80	78	78	78
					(Metric Tons per Hectare)						
Yield	2.20	2.20	2.21	2.22	2.24	2.25	2.27	2.28	2.29	2.30	2.31
					(Thousand Metric Tons)						
Production	180	176	168	163	164	168	178	181	179	180	181
Beginning Stocks	219	285	327	358	378	396	418	436	452	467	481
Domestic Supply	399	460	495	521	542	564	596	617	631	647	663
Consumption	1,476	1,553	1,593	1,655	1,759	1,815	1,872	1,926	1,981	2,036	2,087
Ending Stocks	285	327	358	378	396	418	436	452	467	481	495
Domestic Use	1,760	1,880	1,951	2,033	2,155	2,232	2,308	2,378	2,448	2,517	2,582
Net Trade	-1,361	-1,420	-1,456	-1,512	-1,613	-1,668	-1,712	-1,761	-1,817	-1,869	-1,920

Table 24 Japan Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	1,599	1,591	1,568	1,535	1,503	1,465	1,453	1,430	1,423	1,420	1,408
					(Metric Tons per Hectare)						
Yield	4.90	4.87	4.87	4.85	4.83	4.83	4.82	4.82	4.81	4.81	4.81
					(Thousand Metric Tons)						
Production	7,832	7,746	7,639	7,453	7,261	7,069	7,007	6,887	6,851	6,830	6,768
Beginning Stocks	2,742	2,791	2,820	2,862	2,801	2,659	2,433	2,222	2,008	1,837	1,756
Domestic Supply	10,574	10,537	10,459	10,314	10,062	9,728	9,440	9,110	8,859	8,667	8,524
Consumption	8,265	8,199	8,079	7,995	7,885	7,777	7,700	7,584	7,505	7,392	7,291
Ending Stocks	2,791	2,820	2,862	2,801	2,659	2,433	2,222	2,008	1,837	1,756	1,716
Domestic Use	11,056	11,019	10,941	10,796	10,544	10,210	9,922	9,592	9,341	9,149	9,006
Net Trade	-482	-482	-482	-482	-482	-482	-482	-482	-482	-482	-482

Table 25 Kenya Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	25	27	29	30	31	33	34	35	36	38	39
					(Metric Tons per Hectare)						
Yield	3.04	3.08	3.10	3.11	3.12	3.13	3.14	3.15	3.16	3.17	3.17
					(Thousand Metric Tons)						
Production	76	83	88	93	98	103	107	111	115	119	123
Beginning Stocks	100	76	87	101	111	121	124	132	141	153	169
Domestic Supply	176	159	175	195	209	223	231	244	256	272	292
Consumption	458	500	556	594	634	657	709	762	812	876	930
Ending Stocks	76	87	101	111	121	124	132	141	153	169	182
Domestic Use	534	587	657	705	755	781	842	903	965	1,044	1,112
Net Trade	-358	-428	-482	-510	-546	-558	-610	-659	-709	-772	-821

Table 26 Lao PDR Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	870	894	908	919	924	930	937	943	953	965	975
					(Metric Tons per Hectare)						
Yield	1.72	1.80	1.83	1.87	1.93	1.98	2.02	2.07	2.11	2.15	2.17
					(Thousand Metric Tons)						
Production	1,497	1,606	1,660	1,718	1,782	1,842	1,895	1,947	2,009	2,076	2,118
Beginning Stocks	206	130	111	112	113	115	116	117	119	120	121
Domestic Supply	1,703	1,735	1,771	1,830	1,895	1,957	2,011	2,064	2,128	2,195	2,239
Consumption	1,551	1,578	1,615	1,651	1,686	1,716	1,750	1,782	1,814	1,850	1,883
Ending Stocks	130	111	112	113	115	116	117	119	120	121	122
Domestic Use	1,681	1,689	1,727	1,764	1,801	1,832	1,867	1,900	1,934	1,971	2,006
Net Trade	23	47	44	66	94	125	143	164	194	224	233

Table 27 Liberia Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	250	254	258	262	266	269	272	275	278	281	283
					(Metric Tons per Hectare)						
Yield	0.60	0.61	0.61	0.62	0.63	0.63	0.64	0.64	0.65	0.66	0.66
					(Thousand Metric Tons)						
Production	150	154	158	162	166	170	174	177	181	185	188
Beginning Stocks	53	48	53	54	55	56	56	57	58	58	59
Domestic Supply	203	202	212	216	221	226	230	234	239	243	248
Consumption	460	478	498	510	537	549	570	588	608	635	652
Ending Stocks	48	53	54	55	56	56	57	58	58	59	60
Domestic Use	508	532	552	564	592	605	627	646	666	694	712
Net Trade	-305	-330	-340	-348	-372	-379	-397	-411	-427	-451	-464

Table 28 Malaysia Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	690	689	688	687	686	685	685	686	685	685	684
					(Metric Tons per Hectare)						
Yield	2.54	2.58	2.59	2.62	2.64	2.66	2.69	2.73	2.75	2.79	2.82
					(Thousand Metric Tons)						
Production	1,755	1,775	1,781	1,798	1,810	1,823	1,846	1,870	1,887	1,910	1,929
Beginning Stocks	588	670	678	688	700	700	710	715	720	727	733
Domestic Supply	2,343	2,445	2,459	2,486	2,510	2,523	2,556	2,585	2,607	2,637	2,663
Consumption	2,781	2,846	2,921	2,928	2,988	3,023	3,057	3,102	3,142	3,190	3,235
Ending Stocks	670	678	688	700	700	710	715	720	727	733	741
Domestic Use	3,451	3,524	3,609	3,628	3,688	3,733	3,772	3,822	3,869	3,923	3,976
Net Trade	-1,108	-1,079	-1,150	-1,142	-1,179	-1,211	-1,216	-1,237	-1,261	-1,286	-1,313

Table 29 Mali Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	667	680	698	707	734	753	772	785	792	814	821
					(Metric Tons per Hectare)						
Yield	1.93	2.04	2.10	2.15	2.20	2.26	2.32	2.37	2.42	2.47	2.53
					(Thousand Metric Tons)						
Production	1,290	1,388	1,464	1,517	1,618	1,702	1,791	1,857	1,917	2,015	2,077
Beginning Stocks	87	85	108	130	133	136	137	140	142	145	149
Domestic Supply	1,377	1,474	1,571	1,647	1,751	1,838	1,928	1,996	2,060	2,160	2,225
Consumption	1,440	1,501	1,571	1,634	1,704	1,749	1,817	1,883	1,957	2,041	2,112
Ending Stocks	85	108	130	133	136	137	140	142	145	149	151
Domestic Use	1,526	1,609	1,701	1,767	1,839	1,886	1,957	2,026	2,102	2,190	2,263
Net Trade	-149	-135	-130	-120	-89	-48	-28	-29	-43	-29	-38

Table 30 Mexico Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	35	37	39	40	41	40	40	40	40	40	40
					(Metric Tons per Hectare)						
Yield	3.74	3.71	3.77	3.81	3.78	3.73	3.75	3.73	3.73	3.77	3.79
					(Thousand Metric Tons)						
Production	131	136	148	153	153	151	151	150	149	150	151
Beginning Stocks	189	183	186	188	188	188	190	189	190	191	192
Domestic Supply	320	320	333	341	341	339	340	339	340	342	343
Consumption	863	892	905	928	948	966	987	1,006	1,036	1,047	1,057
Ending Stocks	183	186	188	188	188	190	189	190	191	192	185
Domestic Use	1,046	1,078	1,093	1,116	1,136	1,155	1,176	1,196	1,228	1,239	1,242
Net Trade	-726	-758	-760	-776	-796	-816	-836	-857	-888	-897	-899

Table 31 Mozambique Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	240	244	249	253	258	263	268	274	279	285	291
					(Metric Tons per Hectare)						
Yield	0.95	0.95	0.97	0.99	1.01	1.03	1.04	1.05	1.07	1.09	1.11
					(Thousand Metric Tons)						
Production	228	231	242	252	262	272	280	288	299	311	323
Beginning Stocks	0	0	14	15	16	17	18	19	20	22	24
Domestic Supply	228	231	256	267	278	289	297	307	319	333	347
Consumption	728	748	781	808	840	857	887	922	962	1,014	1,055
Ending Stocks	0	14	15	16	17	18	19	20	22	24	26
Domestic Use	728	762	796	824	857	875	906	943	984	1,039	1,081
Net Trade	-500	-531	-540	-557	-580	-586	-609	-636	-664	-706	-734

Table 32 Myanmar Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	7,052	7,065	7,026	7,013	7,008	6,974	6,943	6,928	6,914	6,903	6,895
					(Metric Tons per Hectare)						
Yield	1.69	1.71	1.73	1.74	1.76	1.78	1.80	1.81	1.83	1.85	1.87
					(Thousand Metric Tons)						
Production	11,937	12,081	12,135	12,234	12,348	12,408	12,472	12,564	12,660	12,757	12,862
Beginning Stocks	553	666	458	451	496	431	361	331	325	325	368
Domestic Supply	12,490	12,747	12,593	12,685	12,844	12,839	12,833	12,895	12,985	13,083	13,230
Consumption	10,530	11,012	11,088	11,184	11,384	11,376	11,455	11,502	11,557	11,621	11,651
Ending Stocks	666	458	451	496	431	361	331	325	325	368	419
Domestic Use	11,196	11,470	11,539	11,680	11,814	11,736	11,786	11,827	11,882	11,989	12,070
Net Trade	1,295	1,278	1,054	1,005	1,029	1,102	1,047	1,069	1,103	1,094	1,160

Table 33 Nigeria Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	2,500	2,544	2,598	2,645	2,708	2,780	2,854	2,921	2,991	3,060	3,110
					(Metric Tons per Hectare)						
Yield	1.11	1.22	1.24	1.27	1.31	1.34	1.37	1.41	1.44	1.48	1.51
					(Thousand Metric Tons)						
Production	2,772	3,097	3,226	3,361	3,534	3,723	3,920	4,112	4,312	4,517	4,697
Beginning Stocks	885	659	651	669	684	696	705	711	715	718	721
Domestic Supply	3,657	3,756	3,877	4,030	4,218	4,419	4,625	4,822	5,027	5,236	5,417
Consumption	5,980	6,267	6,611	6,834	7,092	7,316	7,553	7,786	8,002	8,226	8,487
Ending Stocks	659	651	669	684	696	705	711	715	718	721	722
Domestic Use	6,640	6,919	7,279	7,519	7,788	8,021	8,263	8,501	8,720	8,946	9,209
Net Trade	-2,983	-3,163	-3,402	-3,489	-3,570	-3,602	-3,639	-3,679	-3,693	-3,710	-3,792

Table 34 Pakistan Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	2,760	2,754	2,756	2,754	2,771	2,794	2,830	2,875	2,949	2,985	3,028
					(Metric Tons per Hectare)						
Yield	2.39	2.39	2.31	2.29	2.29	2.32	2.35	2.39	2.39	2.40	2.40
					(Thousand Metric Tons)						
Production	6,600	6,571	6,365	6,310	6,357	6,479	6,664	6,860	7,037	7,152	7,258
Beginning Stocks	500	584	742	777	742	692	691	681	676	701	732
Domestic Supply	7,100	7,155	7,106	7,087	7,098	7,171	7,356	7,541	7,713	7,853	7,990
Consumption	2,631	2,784	2,851	2,913	2,941	2,992	3,042	3,086	3,138	3,198	3,234
Ending Stocks	584	742	777	742	692	691	681	676	701	732	746
Domestic Use	3,215	3,526	3,628	3,655	3,633	3,684	3,722	3,762	3,840	3,930	3,980
Net Trade	3,885	3,629	3,479	3,432	3,465	3,487	3,634	3,779	3,873	3,923	4,010

Table 35 Philippines Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	4,803	4,848	4,811	4,786	4,797	4,799	4,803	4,800	4,804	4,819	4,829
					(Metric Tons per Hectare)						
Yield	2.46	2.49	2.51	2.56	2.62	2.67	2.71	2.78	2.83	2.88	2.93
					(Thousand Metric Tons)						
Production	11,813	12,078	12,073	12,251	12,561	12,818	13,039	13,322	13,579	13,869	14,161
Beginning Stocks	1,487	1,900	2,492	2,352	2,331	2,334	2,354	2,362	2,386	2,409	2,433
Domestic Supply	13,300	13,978	14,565	14,603	14,892	15,152	15,393	15,684	15,965	16,278	16,595
Consumption	12,850	13,270	13,339	13,409	13,604	13,641	13,868	14,049	14,243	14,495	14,682
Ending Stocks	1,900	2,492	2,352	2,331	2,334	2,354	2,362	2,386	2,409	2,433	2,463
Domestic Use	14,750	15,762	15,691	15,740	15,939	15,996	16,230	16,435	16,652	16,928	17,145
Net Trade	-1,450	-1,784	-1,126	-1,137	-1,046	-844	-837	-751	-687	-650	-550

Table 36 Saudi Arabia Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Metric Tons)										
Beginning Stocks	260	264	266	269	272	274	276	279	281	284	287
Domestic Supply	260	264	266	269	272	274	276	279	281	284	287
Consumption	1,324	1,361	1,386	1,410	1,436	1,460	1,486	1,516	1,551	1,586	1,616
Ending Stocks	264	266	269	272	274	276	279	281	284	287	291
Domestic Use	1,587	1,627	1,655	1,682	1,710	1,737	1,764	1,797	1,835	1,874	1,907
Net Trade	-1,327	-1,364	-1,390	-1,412	-1,439	-1,463	-1,488	-1,518	-1,554	-1,590	-1,619

Table 37 Senegal Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	107	128	141	147	151	154	156	157	159	160	161
	(Metric Tons per Hectare)										
Yield	2.71	2.75	2.79	2.82	2.87	2.91	2.95	2.98	3.02	3.06	3.10
	(Thousand Metric Tons)										
Production	290	352	392	415	432	447	459	469	479	490	500
Beginning Stocks	174	230	215	218	218	218	227	236	245	254	263
Domestic Supply	464	583	607	633	650	665	686	705	724	743	763
Consumption	1,402	1,448	1,492	1,540	1,589	1,635	1,680	1,724	1,769	1,813	1,857
Ending Stocks	230	215	218	218	218	227	236	245	254	263	266
Domestic Use	1,632	1,663	1,710	1,758	1,806	1,862	1,916	1,969	2,022	2,076	2,123
Net Trade	-1,168	-1,081	-1,103	-1,125	-1,156	-1,198	-1,229	-1,264	-1,298	-1,332	-1,360

Table 38 Sierra Leone Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	625	632	640	649	658	668	678	690	701	712	722
	(Metric Tons per Hectare)										
Yield	1.25	1.28	1.32	1.37	1.41	1.45	1.50	1.54	1.59	1.64	1.69
	(Thousand Metric Tons)										
Production	779	812	848	885	926	969	1,015	1,064	1,114	1,166	1,220
Beginning Stocks	0	8	9	11	13	16	18	20	22	24	26
Domestic Supply	779	820	857	896	939	985	1,033	1,084	1,136	1,190	1,246
Consumption	991	1,027	1,074	1,137	1,205	1,253	1,308	1,357	1,403	1,458	1,493
Ending Stocks	8	9	11	13	16	18	20	22	24	26	27
Domestic Use	999	1,036	1,085	1,150	1,221	1,271	1,328	1,378	1,426	1,483	1,520
Net Trade	-220	-216	-229	-254	-282	-286	-295	-295	-290	-293	-275

Table 39 Singapore Rice Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Metric Tons)										
Consumption	305	317	318	321	324	326	328	331	331	331	330
Ending Stocks	0	0	0	0	0	0	0	0	0	0	0
Domestic Use	305	317	318	321	324	326	328	331	331	331	330
Net Trade	-305	-317	-318	-321	-324	-326	-328	-331	-331	-331	-330

Table 40 South Africa Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Metric Tons)										
Beginning Stocks	16	21	52	55	65	74	87	88	91	93	95
Domestic Supply	16	21	52	55	65	74	87	88	91	93	95
Consumption	905	912	927	923	922	934	940	955	965	977	991
Ending Stocks	21	52	55	65	74	87	88	91	93	95	98
Domestic Use	926	964	982	987	997	1,021	1,028	1,046	1,058	1,073	1,090
Net Trade	-910	-943	-930	-932	-932	-947	-941	-958	-967	-980	-994

Table 41 South Korea Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	833	826	820	809	801	795	793	789	789	786	785
	(Metric Tons per Hectare)										
Yield	5.02	5.02	5.03	5.04	5.06	5.06	5.06	5.06	5.06	5.06	5.07
	(Thousand Metric Tons)										
Production	4,181	4,144	4,125	4,081	4,050	4,023	4,017	3,991	3,995	3,976	3,974
Beginning Stocks	744	728	701	711	737	736	765	815	859	935	1,000
Domestic Supply	4,925	4,872	4,826	4,792	4,787	4,759	4,782	4,806	4,855	4,911	4,973
Consumption	4,608	4,580	4,524	4,463	4,459	4,402	4,375	4,355	4,328	4,320	4,311
Ending Stocks	728	701	711	737	736	765	815	859	935	1,000	1,071
Domestic Use	5,336	5,280	5,235	5,201	5,196	5,167	5,190	5,214	5,263	5,320	5,382
Net Trade	-410	-409	-409	-409	-409	-409	-409	-409	-409	-409	-409

Table 42 Taiwan Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	273	270	269	266	264	263	261	259	257	255	254
					(Metric Tons per Hectare)						
Yield	4.22	4.22	4.15	4.15	4.15	4.16	4.17	4.18	4.21	4.23	4.26
					(Thousand Metric Tons)						
Production	1,151	1,139	1,115	1,106	1,098	1,093	1,088	1,083	1,080	1,080	1,085
Beginning Stocks	363	330	287	260	230	208	194	183	171	161	157
Domestic Supply	1,514	1,470	1,402	1,366	1,328	1,301	1,283	1,265	1,250	1,241	1,241
Consumption	1,307	1,297	1,257	1,250	1,235	1,222	1,215	1,209	1,204	1,200	1,195
Ending Stocks	330	287	260	230	208	194	183	171	161	157	161
Domestic Use	1,638	1,585	1,517	1,481	1,443	1,416	1,398	1,380	1,365	1,356	1,356
Net Trade	-124	-115	-115	-115	-115	-115	-115	-115	-115	-115	-115

Table 43 Tanzania Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	950	964	977	989	1,001	1,013	1,024	1,035	1,045	1,055	1,065
					(Metric Tons per Hectare)						
Yield	1.29	1.30	1.32	1.35	1.37	1.40	1.42	1.45	1.47	1.49	1.52
					(Thousand Metric Tons)						
Production	1,221	1,252	1,293	1,334	1,374	1,415	1,455	1,495	1,535	1,576	1,616
Beginning Stocks	0	0	25	28	30	33	35	38	41	45	49
Domestic Supply	1,221	1,252	1,318	1,361	1,404	1,448	1,490	1,533	1,577	1,620	1,665
Consumption	1,391	1,426	1,503	1,567	1,640	1,703	1,775	1,856	1,941	2,052	2,154
Ending Stocks	0	25	28	30	33	35	38	41	45	49	53
Domestic Use	1,391	1,451	1,530	1,598	1,673	1,738	1,814	1,898	1,986	2,101	2,207
Net Trade	-170	-199	-212	-236	-269	-291	-323	-364	-409	-480	-542

Table 44 Thailand Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	10,917	10,902	10,424	10,426	10,443	10,446	10,430	10,406	10,381	10,350	10,332
	(Metric Tons per Hectare)										
Yield	1.87	1.89	1.91	1.93	1.95	1.96	1.98	1.99	1.99	2.00	2.01
	(Thousand Metric Tons)										
Production	20,455	20,582	19,893	20,143	20,366	20,511	20,620	20,707	20,663	20,702	20,722
Beginning Stocks	12,808	13,894	14,290	13,285	12,182	10,610	9,058	7,513	6,053	4,442	2,839
Domestic Supply	33,263	34,476	34,183	33,428	32,548	31,121	29,677	28,219	26,715	25,144	23,561
Consumption	10,785	10,786	10,710	10,682	10,685	10,641	10,623	10,557	10,476	10,456	10,345
Ending Stocks	13,894	14,290	13,285	12,182	10,610	9,058	7,513	6,053	4,442	2,839	1,298
Domestic Use	24,679	25,076	23,995	22,864	21,296	19,699	18,136	16,610	14,918	13,295	11,643
Net Trade	8,584	9,400	10,188	10,563	11,252	11,422	11,541	11,610	11,798	11,849	11,918

Table 45 Turkey Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	98	98	101	102	103	102	102	102	102	102	101
	(Metric Tons per Hectare)										
Yield	5.10	4.93	4.99	5.05	5.11	5.17	5.23	5.29	5.34	5.40	5.46
	(Thousand Metric Tons)										
Production	500	486	505	517	525	529	534	539	543	548	553
Beginning Stocks	194	201	209	206	207	208	209	211	213	213	214
Domestic Supply	694	687	714	723	732	737	742	750	756	761	768
Consumption	768	793	802	817	832	847	865	881	896	914	931
Ending Stocks	201	209	206	207	208	209	211	213	213	214	216
Domestic Use	969	1,002	1,008	1,024	1,040	1,055	1,076	1,094	1,109	1,128	1,147
Net Trade	-275	-316	-294	-301	-308	-318	-333	-344	-353	-367	-379

Table 46 Uruguay Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	174	177	180	183	186	187	190	191	192	192	194
					(Metric Tons per Hectare)						
Yield	5.51	5.72	5.79	5.87	5.91	5.96	6.00	6.05	6.09	6.17	6.25
					(Thousand Metric Tons)						
Production	958	1,013	1,044	1,076	1,097	1,117	1,143	1,158	1,169	1,186	1,213
Beginning Stocks	21	23	35	35	35	35	35	35	35	35	35
Domestic Supply	979	1,036	1,079	1,111	1,132	1,152	1,178	1,192	1,204	1,221	1,248
Consumption	60	61	62	62	62	62	62	62	62	62	62
Ending Stocks	23	35	35	35	35	35	35	35	35	35	35
Domestic Use	84	96	96	96	96	96	97	97	97	97	97
Net Trade	895	940	983	1,014	1,036	1,055	1,081	1,095	1,107	1,124	1,151

Table 47 Vietnam Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	7,781	7,811	7,877	7,905	7,926	7,979	7,998	7,999	7,997	7,990	7,987
					(Metric Tons per Hectare)						
Yield	3.57	3.58	3.58	3.60	3.63	3.66	3.70	3.73	3.76	3.80	3.84
					(Thousand Metric Tons)						
Production	27,814	27,941	28,202	28,426	28,753	29,220	29,604	29,830	30,088	30,347	30,640
Beginning Stocks	863	1,179	921	709	442	285	326	496	461	314	271
Domestic Supply	28,677	29,121	29,123	29,135	29,195	29,504	29,930	30,326	30,549	30,661	30,911
Consumption	21,517	21,825	21,926	21,978	22,098	21,971	22,072	22,080	22,176	22,271	22,279
Ending Stocks	1,179	921	709	442	285	326	496	461	314	271	412
Domestic Use	22,696	22,746	22,636	22,420	22,383	22,298	22,568	22,541	22,491	22,542	22,691
Net Trade	5,981	6,375	6,488	6,715	6,812	7,207	7,362	7,785	8,058	8,119	8,220

Table 48 Africa Total Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	10,651	10,737	10,899	11,029	11,209	11,394	11,604	11,777	11,935	12,114	12,255
	(Metric Tons per Hectare)										
Yield	1.71	1.77	1.80	1.82	1.86	1.90	1.92	1.96	1.98	2.01	2.04
	(Thousand Metric Tons)										
Production	18,245	19,009	19,583	20,127	20,851	21,621	22,320	23,031	23,628	24,348	25,028
Beginning Stocks	2,349	2,269	2,491	2,706	2,871	2,994	3,144	3,227	3,300	3,340	3,352
Domestic Supply	20,594	21,277	22,074	22,833	23,723	24,615	25,463	26,258	26,928	27,688	28,381
Consumption	31,232	32,307	33,570	34,595	35,773	36,908	38,092	39,356	40,413	41,577	42,665
Ending Stocks	2,269	2,491	2,706	2,871	2,994	3,144	3,227	3,300	3,340	3,352	3,376
Domestic Use	33,500	34,797	36,276	37,466	38,767	40,052	41,320	42,656	43,753	44,930	46,040
Net Trade	-12,906	-13,520	-14,202	-14,633	-15,044	-15,437	-15,856	-16,398	-16,825	-17,242	-17,660

Table 49 African Aggregate of Countries with Individual AGRM Models – Rice Supply, Utilization, and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	8,493	8,606	8,772	8,898	9,064	9,232	9,424	9,580	9,722	9,884	10,007
	(Metric Tons per Hectare)										
Yield	1.73	1.80	1.83	1.86	1.90	1.94	1.96	1.99	2.01	2.04	2.07
	(Thousand Metric Tons)										
Production	14,688	15,481	16,029	16,552	17,208	17,874	18,465	19,028	19,556	20,161	20,722
Beginning Stocks	2,303	2,188	2,396	2,597	2,758	2,877	3,019	3,098	3,164	3,202	3,212
Domestic Supply	16,991	17,669	18,425	19,149	19,966	20,751	21,484	22,126	22,720	23,362	23,934
Consumption	24,467	25,282	26,319	27,160	28,102	28,858	29,811	30,752	31,688	32,729	33,710
Ending Stocks	2,188	2,396	2,597	2,758	2,877	3,019	3,098	3,164	3,202	3,212	3,234
Domestic Use	26,656	27,678	28,916	29,918	30,979	31,877	32,909	33,916	34,889	35,941	36,944
Net Trade	-9,665	-10,008	-10,491	-10,769	-11,013	-11,126	-11,425	-11,790	-12,170	-12,579	-13,010

Table 50 African Aggregate of Other Countries Modeled as a Group in AGRM – Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	2,158	2,131	2,127	2,131	2,145	2,162	2,180	2,197	2,213	2,230	2,248
					(Metric Tons per Hectare)						
Yield	1.65	1.66	1.67	1.68	1.70	1.73	1.77	1.82	1.84	1.88	1.92
					(Thousand Metric Tons)						
Production	3,557	3,528	3,554	3,575	3,644	3,747	3,855	4,003	4,073	4,188	4,307
Beginning Stocks	46	80	95	109	113	118	125	129	135	138	140
Domestic Supply	3,603	3,608	3,649	3,684	3,757	3,864	3,979	4,133	4,208	4,326	4,447
Consumption	6,764	7,025	7,251	7,435	7,671	8,050	8,282	8,604	8,726	8,848	8,954
Ending Stocks	80	95	109	113	118	125	129	135	138	140	142
Domestic Use	6,844	7,120	7,360	7,548	7,788	8,175	8,411	8,740	8,863	8,988	9,097
Net Trade	-3,242	-3,512	-3,711	-3,864	-4,032	-4,311	-4,432	-4,607	-4,655	-4,663	-4,650

Table 51 Western Hemisphere Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	6,407	6,685	6,628	6,622	6,631	6,648	6,667	6,675	6,668	6,672	6,683
					(Metric Tons per Hectare)						
Yield	3.74	3.82	3.83	3.86	3.89	3.92	3.94	3.96	3.98	4.01	4.04
					(Thousand Metric Tons)						
Production	23,932	25,532	25,387	25,562	25,824	26,033	26,238	26,427	26,541	26,763	26,977
Beginning Stocks	3,193	3,441	3,934	4,138	4,222	4,211	4,214	4,139	4,061	3,915	3,695
Domestic Supply	27,125	28,974	29,320	29,701	30,046	30,244	30,452	30,566	30,602	30,678	30,672
Consumption	22,956	23,870	24,108	24,527	24,940	25,342	25,656	25,957	26,204	26,413	26,626
Ending Stocks	3,441	3,934	4,138	4,222	4,211	4,214	4,139	4,061	3,915	3,695	3,465
Domestic Use	26,398	27,804	28,247	28,748	29,150	29,556	29,795	30,018	30,118	30,108	30,090
Net Trade	728	1,170	1,074	952	896	688	657	548	484	570	581

Table 52 Western Hemisphere Aggregate of Countries with Individual AGRM Models – Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	4,300	4,576	4,517	4,518	4,528	4,541	4,552	4,554	4,540	4,536	4,538
					(Metric Tons per Hectare)						
Yield	4.12	4.21	4.22	4.24	4.26	4.28	4.30	4.31	4.32	4.34	4.36
					(Thousand Metric Tons)						
Production	17,699	19,278	19,056	19,142	19,300	19,447	19,572	19,642	19,633	19,681	19,769
Beginning Stocks	2,206	2,276	2,657	2,826	2,873	2,837	2,793	2,689	2,585	2,418	2,188
Domestic Supply	19,905	21,554	21,713	21,968	22,173	22,283	22,365	22,331	22,218	22,099	21,957
Consumption	15,131	15,737	15,798	16,031	16,320	16,484	16,659	16,829	16,969	17,129	17,281
Ending Stocks	2,276	2,657	2,826	2,873	2,837	2,793	2,689	2,585	2,418	2,188	1,946
Domestic Use	17,407	18,394	18,624	18,903	19,157	19,277	19,349	19,415	19,387	19,317	19,226
Net Trade	2,498	3,160	3,089	3,065	3,016	3,006	3,016	2,917	2,831	2,782	2,731

Table 53 Western Hemisphere Aggregate of Other Countries Modeled as a Group in AGRM – Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	2,108	2,109	2,111	2,104	2,103	2,107	2,115	2,121	2,128	2,136	2,144
					(Metric Tons per Hectare)						
Yield	2.96	2.97	3.00	3.05	3.10	3.13	3.15	3.20	3.25	3.32	3.36
					(Thousand Metric Tons)						
Production	6,233	6,255	6,331	6,420	6,524	6,587	6,666	6,786	6,908	7,082	7,208
Beginning Stocks	987	1,165	1,277	1,312	1,349	1,374	1,421	1,449	1,476	1,497	1,507
Domestic Supply	7,220	7,420	7,607	7,732	7,873	7,961	8,087	8,235	8,384	8,579	8,714
Consumption	7,826	8,133	8,311	8,496	8,619	8,857	8,997	9,128	9,234	9,284	9,345
Ending Stocks	1,165	1,277	1,312	1,349	1,374	1,421	1,449	1,476	1,497	1,507	1,519
Domestic Use	8,991	9,410	9,623	9,845	9,993	10,279	10,446	10,603	10,731	10,791	10,864
Net Trade	-1,771	-1,990	-2,015	-2,113	-2,120	-2,318	-2,359	-2,369	-2,348	-2,212	-2,150

Table 54 Asian Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	143,366	142,794	142,141	142,044	141,950	141,915	141,953	141,812	141,754	141,524	141,378
	(Metric Tons per Hectare)										
Yield	3.01	3.03	3.06	3.09	3.11	3.15	3.17	3.20	3.22	3.24	3.28
	(Thousand Metric Tons)										
Production	430,849	432,502	434,796	438,810	441,522	446,890	450,552	453,841	456,943	459,179	464,045
Beginning Stocks	102,967	103,446	99,381	95,289	91,701	87,042	84,646	82,104	79,487	77,369	74,824
Domestic Supply	533,816	535,948	534,177	534,099	533,223	533,933	535,198	535,945	536,430	536,548	538,870
Consumption	416,856	422,920	424,526	427,553	430,920	433,484	436,874	439,618	441,748	444,085	445,164
Ending Stocks	103,446	99,381	95,289	91,701	87,042	84,646	82,104	79,487	77,369	74,824	75,596
Domestic Use	520,301	522,302	519,815	519,253	517,963	518,130	518,978	519,105	519,117	518,909	520,760
Net Trade	13,515	13,646	14,362	14,846	15,260	15,803	16,219	16,840	17,313	17,639	18,110

Table 55 Asian Aggregate of Countries with Individual Models in AGRM – Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	139,349	138,753	138,086	137,979	137,878	137,835	137,867	137,718	137,654	137,417	137,263
	(Metric Tons per Hectare)										
Yield	3.02	3.05	3.08	3.11	3.13	3.17	3.20	3.22	3.25	3.27	3.31
	(Thousand Metric Tons)										
Production	421,380	422,938	425,161	429,116	431,773	437,089	440,700	443,939	446,991	449,178	453,996
Beginning Stocks	102,111	102,707	98,638	94,541	90,949	86,286	83,887	81,342	78,721	76,600	74,052
Domestic Supply	523,491	525,645	523,799	523,657	522,722	523,375	524,586	525,281	525,712	525,778	528,048
Consumption	404,457	410,258	411,614	414,461	417,611	420,012	423,251	425,765	427,754	429,921	430,950
Ending Stocks	102,707	98,638	94,541	90,949	86,286	83,887	81,342	78,721	76,600	74,052	74,822
Domestic Use	507,164	508,896	506,154	505,410	503,897	503,898	504,593	504,486	504,355	503,973	505,772
Net Trade	16,327	16,749	17,645	18,247	18,825	19,477	19,993	20,795	21,357	21,805	22,276

Table 56 Asian Aggregate of Other Countries Modeled as a Group in AGRM – Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	4,017	4,041	4,055	4,064	4,072	4,080	4,087	4,094	4,101	4,107	4,114
					(Metric Tons per Hectare)						
Yield	2.36	2.37	2.38	2.39	2.39	2.40	2.41	2.42	2.43	2.43	2.44
					(Thousand Metric Tons)						
Production	9,469	9,564	9,634	9,694	9,749	9,801	9,852	9,903	9,952	10,001	10,049
Beginning Stocks	856	738	743	748	752	756	759	762	766	769	772
Domestic Supply	10,325	10,302	10,378	10,442	10,500	10,557	10,611	10,665	10,718	10,770	10,822
Consumption	12,399	12,662	12,913	13,092	13,310	13,472	13,623	13,853	13,993	14,164	14,215
Ending Stocks	738	743	748	752	756	759	762	766	769	772	773
Domestic Use	13,137	13,405	13,661	13,844	14,066	14,232	14,385	14,620	14,762	14,936	14,988
Net Trade	-2,812	-3,103	-3,283	-3,401	-3,565	-3,674	-3,774	-3,955	-4,044	-4,166	-4,166

Table 57 European Total Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	660	664	673	680	688	690	692	695	696	698	698
					(Metric Tons per Hectare)						
Yield	3.70	3.86	3.92	3.98	4.05	4.09	4.15	4.20	4.25	4.30	4.33
					(Thousand Metric Tons)						
Production	2,441	2,562	2,639	2,709	2,783	2,827	2,871	2,916	2,961	3,006	3,023
Beginning Stocks	1,260	1,146	1,089	1,058	1,055	1,087	1,131	1,187	1,240	1,301	1,374
Domestic Supply	3,701	3,708	3,728	3,768	3,838	3,914	4,002	4,104	4,201	4,306	4,397
Consumption	3,947	3,941	3,978	4,019	4,038	4,057	4,086	4,122	4,146	4,170	4,186
Ending Stocks	1,146	1,089	1,058	1,055	1,087	1,131	1,187	1,240	1,301	1,374	1,415
Domestic Use	5,093	5,030	5,036	5,074	5,125	5,188	5,273	5,362	5,446	5,544	5,600
Net Trade	-1,392	-1,322	-1,308	-1,307	-1,287	-1,274	-1,271	-1,259	-1,246	-1,238	-1,203

Table 58 European Aggregate of Countries Modeled Individually in AGRM – Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	438	443	452	459	467	470	472	475	478	480	480
					(Metric Tons per Hectare)						
Yield	4.44	4.66	4.73	4.81	4.88	4.94	5.01	5.08	5.14	5.21	5.25
					(Thousand Metric Tons)						
Production	1,944	2,063	2,138	2,208	2,280	2,323	2,366	2,411	2,456	2,500	2,517
Beginning Stocks	1,146	973	916	885	881	915	960	1,016	1,068	1,129	1,203
Domestic Supply	3,090	3,036	3,053	3,093	3,161	3,237	3,326	3,427	3,524	3,629	3,720
Consumption	3,209	3,202	3,237	3,278	3,304	3,329	3,357	3,390	3,416	3,441	3,463
Ending Stocks	973	916	885	881	915	960	1,016	1,068	1,129	1,203	1,244
Domestic Use	4,182	4,117	4,121	4,159	4,218	4,289	4,373	4,458	4,545	4,645	4,707
Net Trade	-1,092	-1,081	-1,068	-1,067	-1,057	-1,052	-1,047	-1,031	-1,021	-1,015	-986

Table 59 European Aggregate of Other Countries Modeled as a Group in AGRM - Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	222	222	222	221	221	220	220	220	219	218	218
					(Metric Tons per Hectare)						
Yield	2.24	2.25	2.26	2.27	2.28	2.29	2.29	2.30	2.31	2.31	2.32
					(Thousand Metric Tons)						
Production	497	499	501	501	503	504	505	505	505	505	505
Beginning Stocks	114	173	173	174	174	172	171	171	172	172	171
Domestic Supply	611	672	674	675	676	676	676	677	677	677	677
Consumption	738	740	741	742	734	728	729	733	730	728	723
Ending Stocks	173	173	174	174	172	171	171	172	172	171	171
Domestic Use	911	913	915	915	906	899	900	905	902	900	894
Net Trade	-300	-240	-240	-240	-230	-223	-224	-228	-224	-223	-217

Table 60 Oceania Total Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	84	76	93	101	105	105	104	104	103	103	102
					(Metric Tons per Hectare)						
Yield	7.24	6.92	6.96	6.99	7.06	7.07	7.07	7.09	7.12	7.14	7.14
					(Thousand Metric Tons)						
Production	612	526	649	708	740	742	739	736	735	732	728
Beginning Stocks	125	131	47	60	90	126	132	113	88	60	28
Domestic Supply	737	657	696	767	830	867	870	849	823	792	757
Consumption	687	693	695	703	712	718	724	719	720	722	726
Ending Stocks	131	47	60	90	126	132	113	88	60	28	40
Domestic Use	818	740	755	793	837	850	837	807	780	751	766
Net Trade	-81	-82	-59	-26	-7	17	33	42	44	41	-9

Table 61 Oceania Aggregate of Countries Modeled individually in AGRM – Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	81	73	91	99	102	102	102	101	101	100	100
					(Metric Tons per Hectare)						
Yield	7.31	6.97	7.00	7.03	7.09	7.11	7.11	7.12	7.16	7.17	7.18
					(Thousand Metric Tons)						
Production	594	511	635	694	726	728	725	722	721	718	715
Beginning Stocks	231	125	40	53	84	119	125	107	82	53	22
Domestic Supply	825	636	675	747	810	847	850	829	803	772	736
Consumption	350	348	352	362	372	378	384	376	376	376	378
Ending Stocks	125	40	53	84	119	125	107	82	53	22	34
Domestic Use	475	388	406	446	491	504	490	458	429	398	411
Net Trade	350	248	269	301	319	344	360	371	374	374	325

Table 62 Oceania Aggregate of Other Countries Modeled as a Group in AGRM – Rice Supply, Utilization, and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	3	3	3	2	2	2	2	2	2	2	2
	(Metric Tons per Hectare)										
Yield	5.45	5.47	5.48	5.51	5.53	5.56	5.58	5.58	5.60	5.62	5.63
	(Thousand Metric Tons)										
Production	18	15	14	14	14	14	14	14	14	14	14
Beginning Stocks	-106	6	7	7	7	7	7	7	7	7	7
Domestic Supply	-88	21	20	20	20	20	20	20	20	20	21
Consumption	337	345	342	340	340	340	341	342	344	346	349
Ending Stocks	6	7	7	7	7	7	7	7	7	7	7
Domestic Use	343	352	349	347	346	346	347	349	351	353	355
Net Trade	-431	-331	-328	-327	-326	-326	-327	-328	-330	-332	-335

Table 63 World Total Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	161,169	160,956	160,436	160,476	160,583	160,753	161,021	161,062	161,157	161,111	161,115
	(Metric Tons per Hectare)										
Yield	2.95	2.98	3.01	3.04	3.06	3.10	3.12	3.15	3.17	3.19	3.23
	(Thousand Metric Tons)										
Production	476,079	480,132	483,054	487,916	491,720	498,113	502,719	506,952	510,808	514,028	519,801
Beginning Stocks	109,894	110,433	106,941	103,252	99,940	95,460	93,266	90,770	88,176	85,984	83,274
Domestic Supply	585,973	590,564	589,995	591,168	591,659	593,573	595,985	597,722	598,984	600,012	603,076
Consumption	475,677	483,731	486,877	491,396	496,382	500,510	505,433	509,773	513,231	516,967	519,367
Ending Stocks	110,433	106,941	103,252	99,940	95,460	93,266	90,770	88,176	85,984	83,274	83,891
Domestic Use	586,110	590,673	590,129	591,336	591,842	593,776	596,203	597,949	599,215	600,242	603,257
Residual	-137	-108	-134	-168	-183	-203	-218	-226	-230	-229	-181

Table 64 World Aggregate of Countries Modeled individually in AGRM – Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	152,661	152,451	151,918	151,953	152,040	152,181	152,417	152,429	152,494	152,416	152,388
	(Metric Tons per Hectare)										
Yield	2.99	3.02	3.05	3.08	3.10	3.14	3.16	3.19	3.21	3.23	3.27
	(Thousand Metric Tons)										
Production	456,305	460,271	463,019	467,713	471,287	477,460	481,828	485,742	489,356	492,239	497,719
Beginning Stocks	107,997	108,270	104,646	100,902	97,546	93,034	90,783	88,252	85,620	83,402	80,677
Domestic Supply	564,302	568,541	567,666	568,614	568,833	570,494	572,611	573,993	574,976	575,641	578,396
Consumption	447,614	454,827	457,320	461,291	465,709	469,062	473,461	477,112	480,204	483,597	485,781
Ending Stocks	108,270	104,646	100,902	97,546	93,034	90,783	88,252	85,620	83,402	80,677	81,279
Domestic Use	555,884	559,473	558,221	558,837	558,742	559,845	561,713	562,732	563,606	564,274	567,060
Net Trade	8,418	9,068	9,444	9,778	10,090	10,649	10,898	11,261	11,371	11,366	11,336

Table 65 World Aggregate of Other Countries Modeled as a Group in AGRM – Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Thousand Hectares)										
Area Harvested	8,508	8,506	8,517	8,523	8,543	8,572	8,604	8,634	8,663	8,695	8,727
	(Metric Tons per Hectare)										
Yield	2.32	2.34	2.35	2.37	2.39	2.41	2.43	2.46	2.48	2.51	2.53
	(Thousand Metric Tons)										
Production	19,773	19,861	20,034	20,204	20,433	20,653	20,891	21,211	21,452	21,790	22,083
Beginning Stocks	1,897	2,163	2,295	2,350	2,394	2,426	2,483	2,519	2,556	2,582	2,597
Domestic Supply	21,670	22,024	22,329	22,554	22,827	23,079	23,374	23,729	24,008	24,372	24,680
Consumption	28,063	28,905	29,558	30,105	30,674	31,448	31,972	32,661	33,027	33,370	33,586
Ending Stocks	2,163	2,295	2,350	2,394	2,426	2,483	2,519	2,556	2,582	2,597	2,612
Domestic Use	30,226	31,200	31,908	32,499	33,100	33,931	34,490	35,217	35,609	35,968	36,197
Net Trade	-8,556	-9,176	-9,578	-9,945	-10,273	-10,852	-11,116	-11,487	-11,601	-11,596	-11,518

Table 66 ECOWAS Total Rice Supply, Utilization and Net Trade, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
					(Thousand Hectares)						
Area Harvested	6,348	6,466	6,610	6,720	6,870	7,015	7,183	7,319	7,444	7,587	7,683
					(Metric Tons per Hectare)						
Yield	1.29	1.37	1.40	1.44	1.48	1.53	1.56	1.59	1.63	1.66	1.70
					(Thousand Metric Tons)						
Production	8,176	8,879	9,281	9,688	10,195	10,704	11,211	11,671	12,110	12,625	13,041
Beginning Stocks	1,760	1,539	1,559	1,629	1,668	1,703	1,739	1,781	1,819	1,855	1,893
Domestic Supply	9,936	10,418	10,840	11,317	11,862	12,407	12,950	13,452	13,929	14,481	14,934
Consumption	16,368	17,043	17,853	18,514	19,247	19,849	20,567	21,251	21,936	22,658	23,359
Ending Stocks	1,539	1,559	1,629	1,668	1,703	1,739	1,781	1,819	1,855	1,893	1,921
Domestic Use	16,368	17,043	17,853	18,514	19,247	21,588	22,348	23,070	23,791	24,551	25,280
Net Trade	-6,432	-6,625	-7,013	-7,197	-7,385	-9,181	-9,398	-9,618	-9,863	-10,070	-10,346

Table 67 Projected Rice Milled Yields Per Hectare for the World and Selected Countries, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Metric Tons per Hectare)										
Argentina	4.3	4.3	4.4	4.4	4.5	4.6	4.6	4.6	4.7	4.8	4.8
Australia	7.3	7.0	7.0	7.0	7.1	7.1	7.1	7.1	7.2	7.2	7.2
Bangladesh	2.9	2.9	2.9	2.9	3.0	3.0	3.0	3.0	3.1	3.1	3.1
Brazil	3.4	3.4	3.4	3.4	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Brunei Darussalam	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Cambodia	1.6	1.6	1.7	1.7	1.8	1.8	1.9	2.0	2.0	2.1	2.1
Cameroon	0.8	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
People's Republic of China	4.7	4.7	4.8	4.8	4.8	4.9	4.9	4.9	5.0	5.0	5.1
Colombia	2.9	3.0	3.0	3.0	3.0	3.1	3.1	3.1	3.1	3.1	3.1
Egypt	6.2	6.4	6.5	6.6	6.7	6.9	6.9	6.9	7.0	7.1	7.1
European Union-28	4.4	4.7	4.7	4.8	4.9	4.9	5.0	5.1	5.1	5.2	5.2
Ghana	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8
Guinea	1.3	1.4	1.4	1.5	1.5	1.5	1.6	1.6	1.7	1.7	1.7
China - Hong Kong	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
India	2.4	2.4	2.5	2.5	2.5	2.6	2.6	2.6	2.7	2.7	2.8
Indonesia	3.0	3.1	3.1	3.2	3.2	3.3	3.3	3.4	3.4	3.4	3.4
Iran	2.8	2.8	2.9	2.9	2.9	2.9	3.0	3.0	3.0	3.0	3.1
Iraq	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3
Cote d'Ivoire	1.2	1.2	1.2	1.3	1.4	1.6	1.6	1.6	1.7	1.7	1.7
Japan	4.9	4.9	4.9	4.9	4.8	4.8	4.8	4.8	4.8	4.8	4.8
Kenya	3.0	3.1	3.1	3.1	3.1	3.1	3.1	3.2	3.2	3.2	3.2
Lao PDR	1.7	1.8	1.8	1.9	1.9	2.0	2.0	2.1	2.1	2.2	2.2
Liberia	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7
Malaysia	2.5	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.8	2.8	2.8
Mali	1.9	2.0	2.1	2.1	2.2	2.3	2.3	2.4	2.4	2.5	2.5
Mexico	3.7	3.7	3.8	3.8	3.8	3.7	3.8	3.7	3.7	3.8	3.8
Mozambique	1.0	0.9	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1
Myanmar (Burma)	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.9

Nigeria	1.1	1.2	1.2	1.3	1.3	1.3	1.4	1.4	1.4	1.5	1.5
Pakistan	2.4	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4
Philippines	2.5	2.5	2.5	2.6	2.6	2.7	2.7	2.8	2.8	2.9	2.9
Saudi Arabia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Senegal	2.7	2.7	2.8	2.8	2.9	2.9	2.9	3.0	3.0	3.1	3.1
Sierra Leone	1.2	1.3	1.3	1.4	1.4	1.5	1.5	1.5	1.6	1.6	1.7
Singapore	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Korea	5.0	5.0	5.0	5.0	5.1	5.1	5.1	5.1	5.1	5.1	5.1
Taiwan	4.2	4.2	4.1	4.1	4.2	4.2	4.2	4.2	4.2	4.2	4.3
Tanzania	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.5	1.5	1.5
Thailand	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Turkey	5.1	4.9	5.0	5.1	5.1	5.2	5.2	5.3	5.3	5.4	5.5
United States	6.1	6.0	6.1	6.1	6.1	6.1	6.2	6.2	6.2	6.3	6.3
Uruguay	5.5	5.7	5.8	5.9	5.9	6.0	6.0	6.0	6.1	6.2	6.3
Vietnam	3.6	3.6	3.6	3.6	3.6	3.7	3.7	3.7	3.8	3.8	3.8
Rest of World	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5
<u>World</u>	3.0	3.0	3.0	3.0	3.1	3.1	3.1	3.1	3.2	3.2	3.2

Table 68 Projected Per Capita Rice Utilization for the World and Selected Countries, 2013-2023

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
	(Kilograms)										
Argentina	10.5	10.6	10.5	10.5	10.6	10.6	10.7	10.7	10.8	10.9	10.9
Australia	15.0	14.7	14.7	15.0	15.2	15.2	15.3	14.8	14.6	14.5	14.3
Bangladesh	222.9	222.3	223.3	224.5	226.0	227.5	228.0	228.0	228.0	228.1	228.4
Brazil	39.3	39.5	39.2	39.0	39.0	38.8	38.8	38.9	39.0	38.9	38.9
Brunei Darussalam	100.4	107.7	110.6	115.2	115.9	116.4	117.5	119.1	119.6	120.8	121.2
Cambodia	241.2	242.5	243.9	244.7	245.8	246.9	247.9	248.5	249.2	251.0	251.6
Cameroon	33.7	34.3	34.6	34.7	34.8	34.6	34.9	35.1	35.5	36.0	36.4
Canada	10.1	10.6	11.7	12.0	12.1	12.3	12.5	12.6	12.8	12.9	13.1
People's Republic of China	99.0	99.5	98.7	98.4	97.9	97.3	97.0	96.7	96.1	95.8	94.9

Colombia	33.2	34.3	33.5	35.2	35.9	36.3	36.3	36.2	35.7	35.7	35.4
Cote d'Ivoire	79.9	82.2	84.3	85.0	85.3	85.2	86.2	87.2	87.8	88.6	88.9
Egypt	48.6	48.1	47.7	47.5	47.4	47.1	47.1	47.1	47.0	47.1	47.0
European Union-27	6.3	6.3	6.3	6.4	6.4	6.5	6.5	6.6	6.6	6.6	6.7
Ghana	37.6	38.0	38.3	38.6	39.0	39.3	39.5	39.7	40.1	40.3	40.7
Guinea	135.0	138.0	139.5	140.6	142.1	141.6	144.1	145.1	146.9	148.4	149.2
China - Hong Kong	59.3	60.2	61.5	61.8	61.8	62.0	62.2	62.6	62.8	63.0	64.3
India	77.1	77.3	77.0	77.2	77.4	77.7	78.1	78.2	78.2	78.1	78.0
Indonesia	154.2	155.2	153.8	152.9	153.3	153.1	153.0	152.8	152.6	152.2	151.9
Iran	44.0	44.8	44.4	43.5	43.1	43.3	43.4	43.5	43.5	43.8	44.0
Iraq	43.7	44.7	44.5	45.0	46.6	46.9	47.2	47.3	47.5	47.6	47.6
Japan	64.9	64.5	63.7	63.2	62.6	61.9	61.5	60.8	60.5	59.8	59.3
Kenya	10.3	11.0	11.9	12.4	12.9	13.0	13.7	14.4	15.0	15.8	16.4
Lao PDR	229.1	228.9	230.0	231.0	231.8	231.9	232.5	232.9	233.4	234.3	234.9
Liberia	105.2	106.1	107.1	106.5	109.0	108.4	109.6	110.2	111.0	113.1	113.5
Malaysia	93.6	94.3	95.3	94.1	94.7	94.5	94.3	94.4	94.4	94.6	94.8
Mali	94.4	95.7	97.4	98.7	100.2	100.3	101.6	102.7	104.2	106.1	107.2
Mexico	7.1	7.2	7.2	7.3	7.4	7.5	7.6	7.6	7.8	7.8	7.8
Mozambique	28.2	28.3	28.8	29.1	29.5	29.4	29.7	30.2	30.7	31.7	32.1
Myanmar (Burma)	167.6	171.8	169.6	167.7	167.3	165.5	165.2	164.7	164.5	164.5	164.0
Nigeria	34.4	35.1	36.0	36.2	36.6	36.7	36.9	37.0	37.1	37.1	37.3
Pakistan	14.4	15.0	15.2	15.2	15.1	15.2	15.2	15.2	15.2	15.3	15.2
Philippines	130.6	132.6	131.0	129.5	129.3	127.6	127.6	127.2	127.0	127.2	126.9
Saudi Arabia	45.9	46.4	46.4	46.4	46.5	46.5	46.6	46.9	47.3	47.8	48.2
Senegal	99.7	100.3	100.7	101.3	102.0	102.4	102.7	103.0	103.2	103.4	103.6
Sierra Leone	161.2	165.4	169.8	176.4	183.6	187.5	192.2	195.8	198.9	203.1	204.5
Singapore	56.3	57.5	56.6	56.2	55.8	55.2	54.8	54.6	54.1	53.6	53.0
South Africa	17.9	17.9	18.1	17.9	17.8	18.0	18.0	18.2	18.2	18.4	18.5
South Korea	93.5	92.5	90.9	89.3	88.9	87.4	86.5	85.8	84.9	84.5	84.1
Taiwan	56.3	55.7	53.8	53.5	52.7	52.1	51.7	51.4	51.1	50.9	50.6
Tanzania	27.4	27.3	27.9	28.3	28.7	29.0	29.4	29.9	30.4	31.3	31.9
Thailand	160.9	160.4	158.9	158.2	157.9	157.1	156.7	155.6	154.3	153.9	152.3
Turkey	10.3	10.5	10.5	10.5	10.6	10.7	10.9	11.0	11.1	11.2	11.3

United States	12.4	13.5	13.4	13.5	13.9	14.0	14.1	14.1	14.1	14.2	14.3
Uruguay	17.7	17.9	18.0	17.9	17.8	17.8	17.8	17.9	17.8	17.8	17.6
Vietnam	234.7	235.8	234.8	233.3	232.7	229.6	229.0	228.6	228.2	227.8	226.6
Rest of World	23.3	23.6	23.9	24.0	24.2	24.5	24.7	24.9	24.9	39.8	24.9
World	66.2	66.5	66.2	66.1	66.1	66.0	66.0	65.9	65.7	65.6	65.3

Estimates of the Stochastic Baseline Analysis

Charts of Selected Price and Trade Variables Showing the 10th and 90th Percentiles, the Stochastic Mean, and the C.V. of Future Probable Distributions (100 Outcomes from Random Draws)

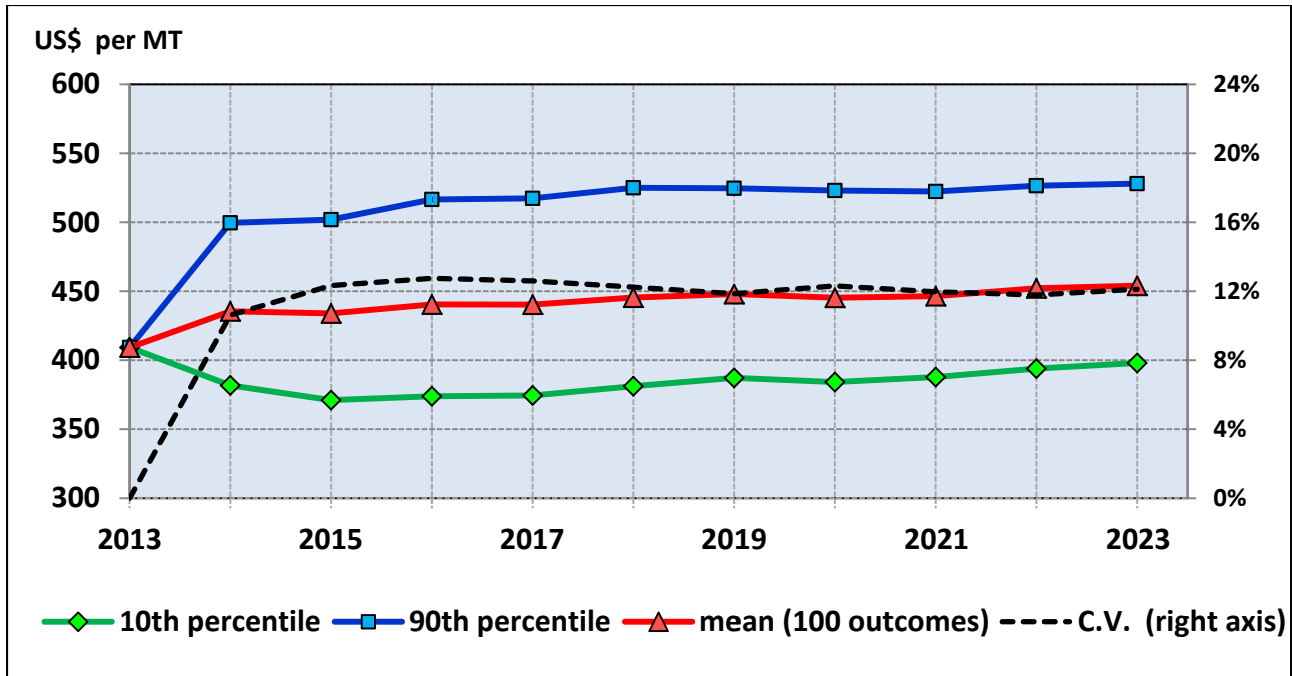


Figure 17 Stochastic Projection of Long Grain Rice International Reference Price

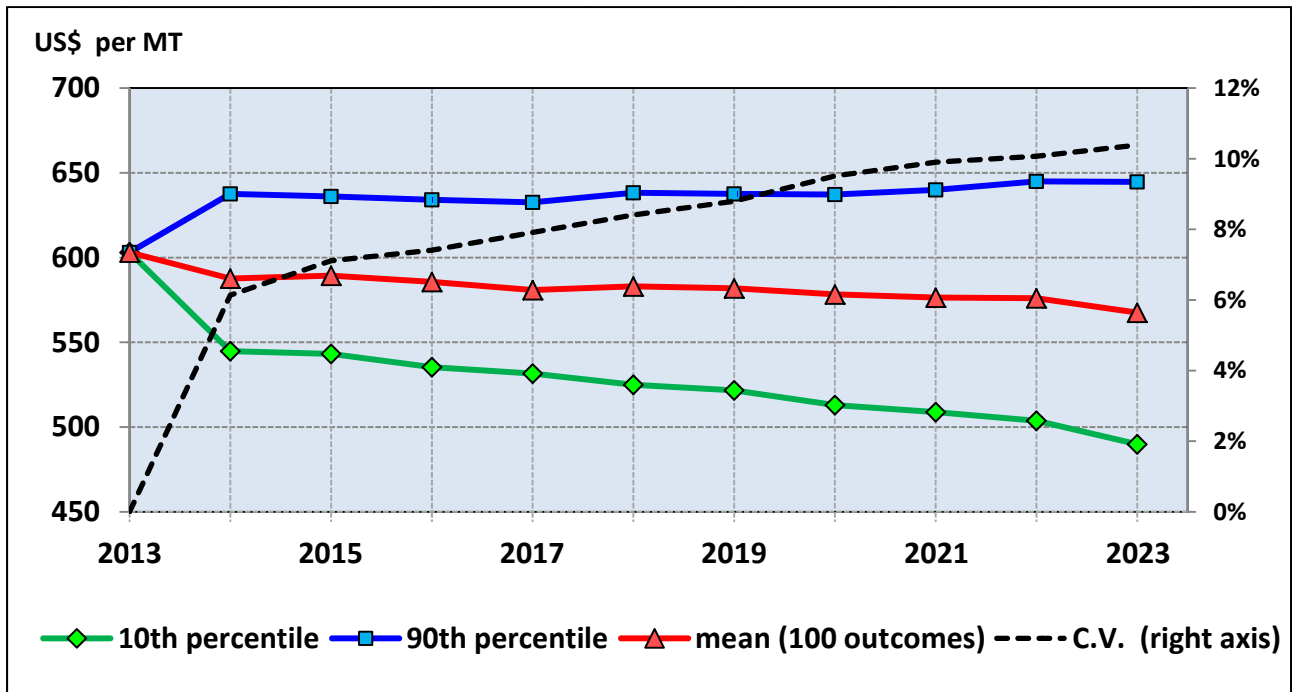


Figure 18 Stochastic Projection of U.S. Long Grain Rice FOB Export Price.

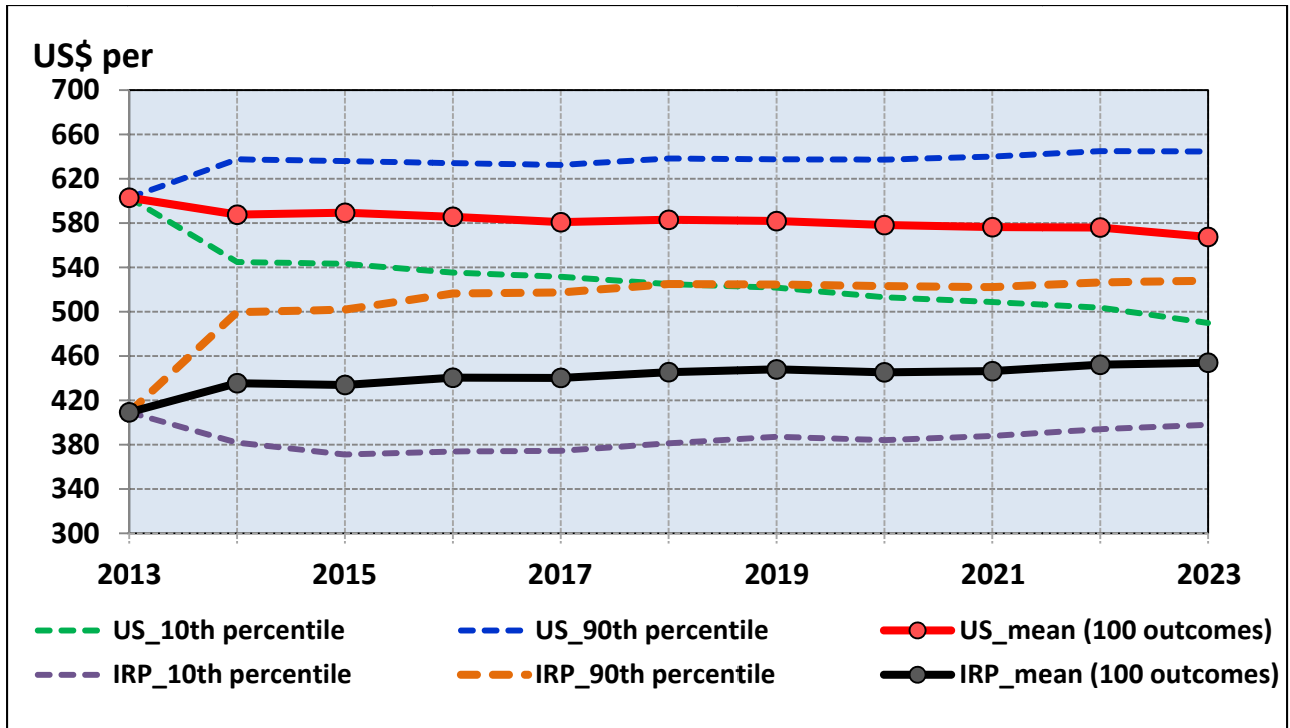


Figure 19 Stochastic Projection Comparisons of International Reference and U.S. Long Grain Rice Export Prices.

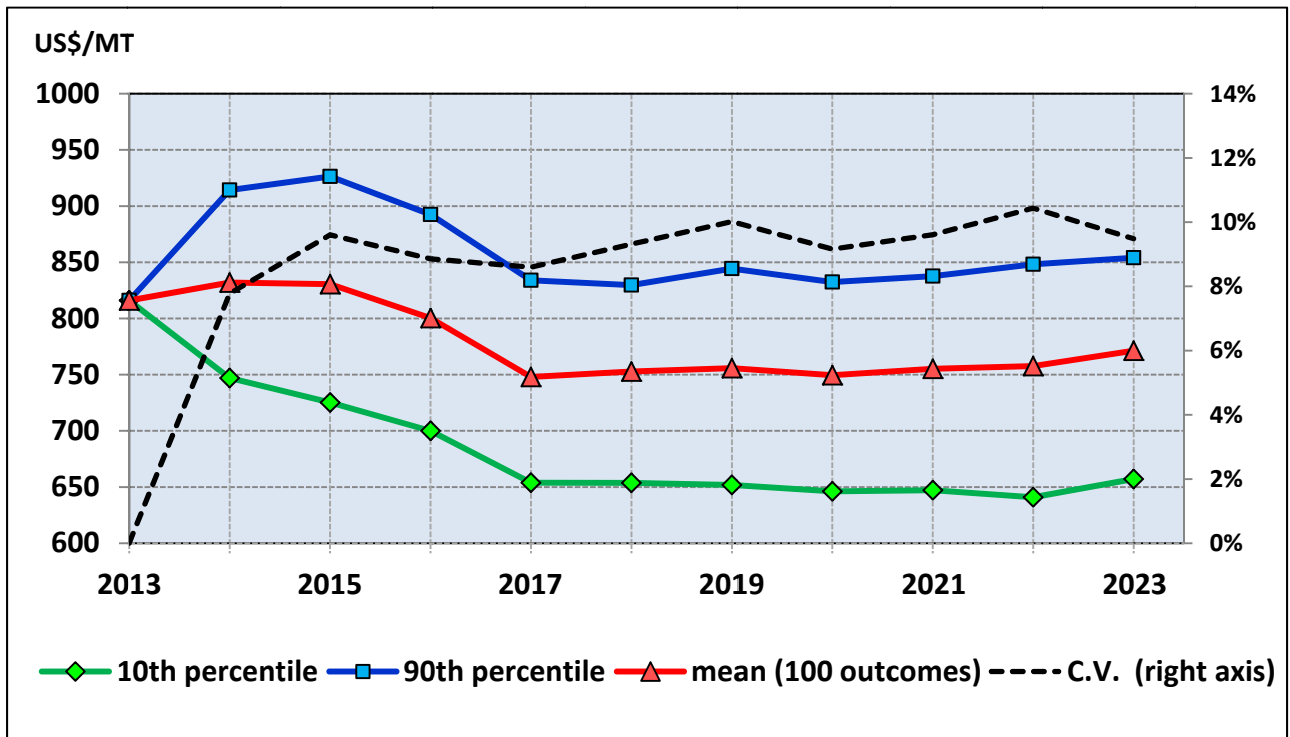


Figure 20 Stochastic Projection of Medium Grain Rice Price, FOB California.

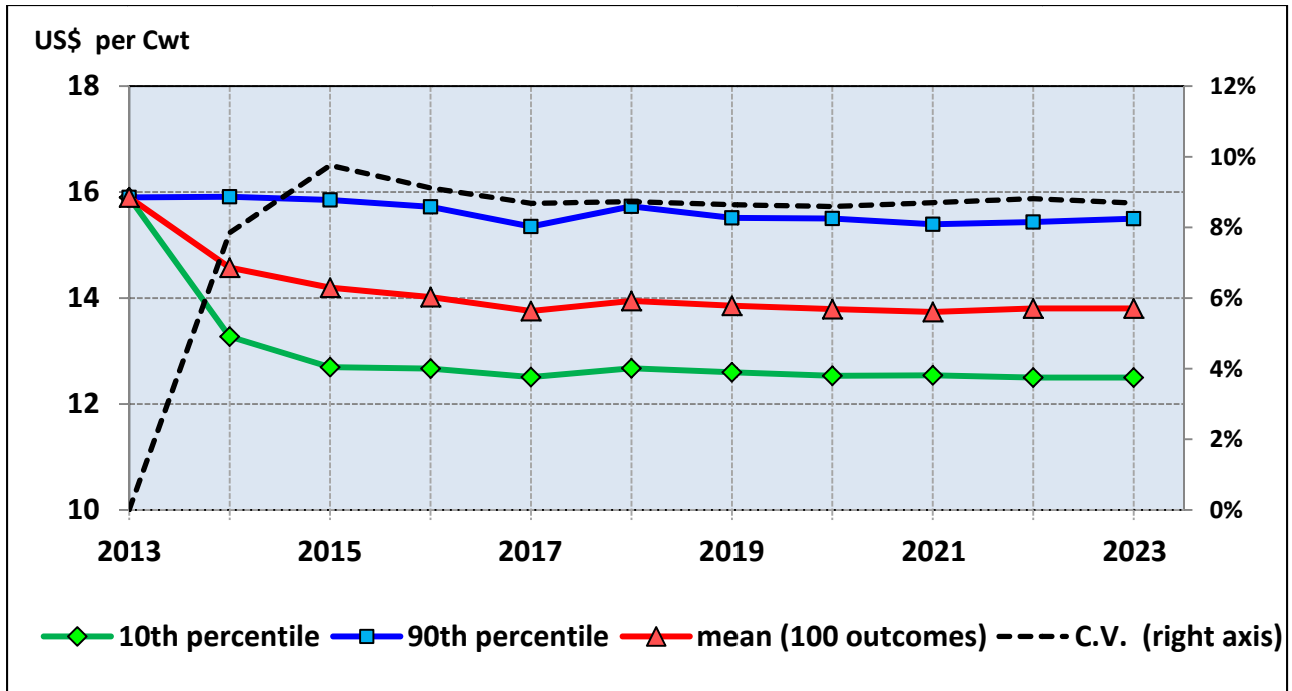


Figure 21 Stochastic Projection of U.S. Season Average All Rice Farm Price.

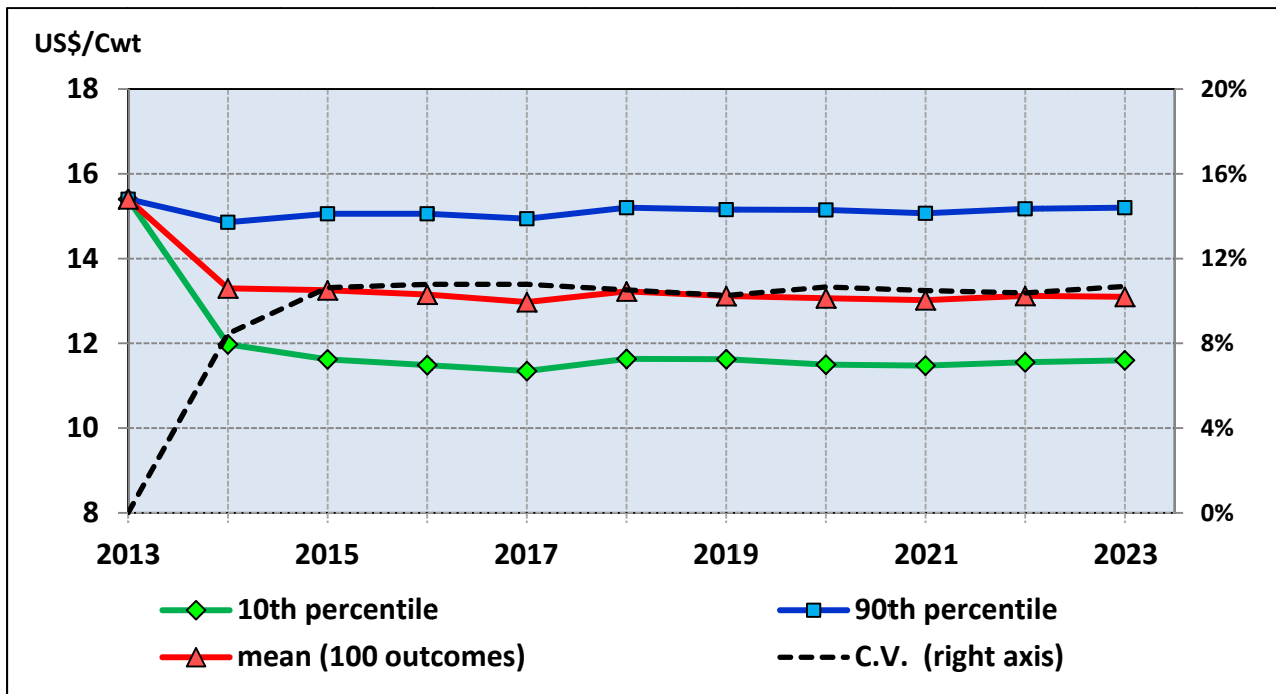


Figure 22 Stochastic Projection of U.S. Long Grain Average Farm Price.

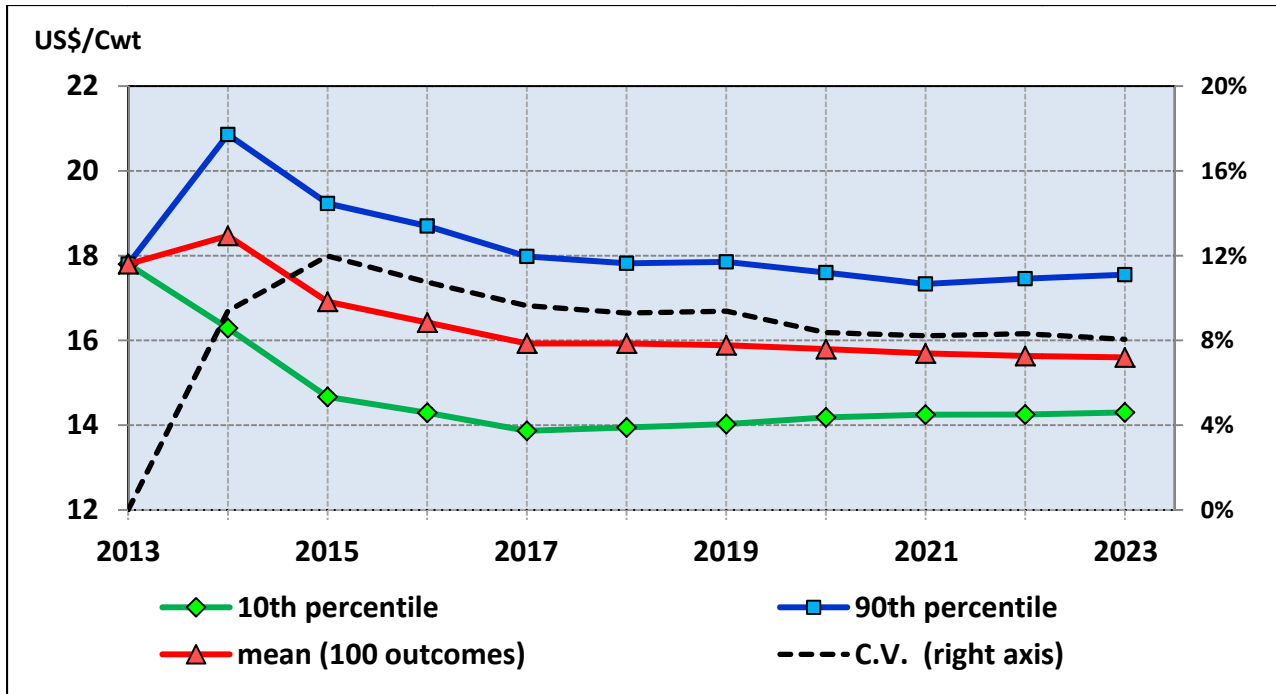


Figure 23 Stochastic Projection of U.S. Medium Grain Average Farm Price.

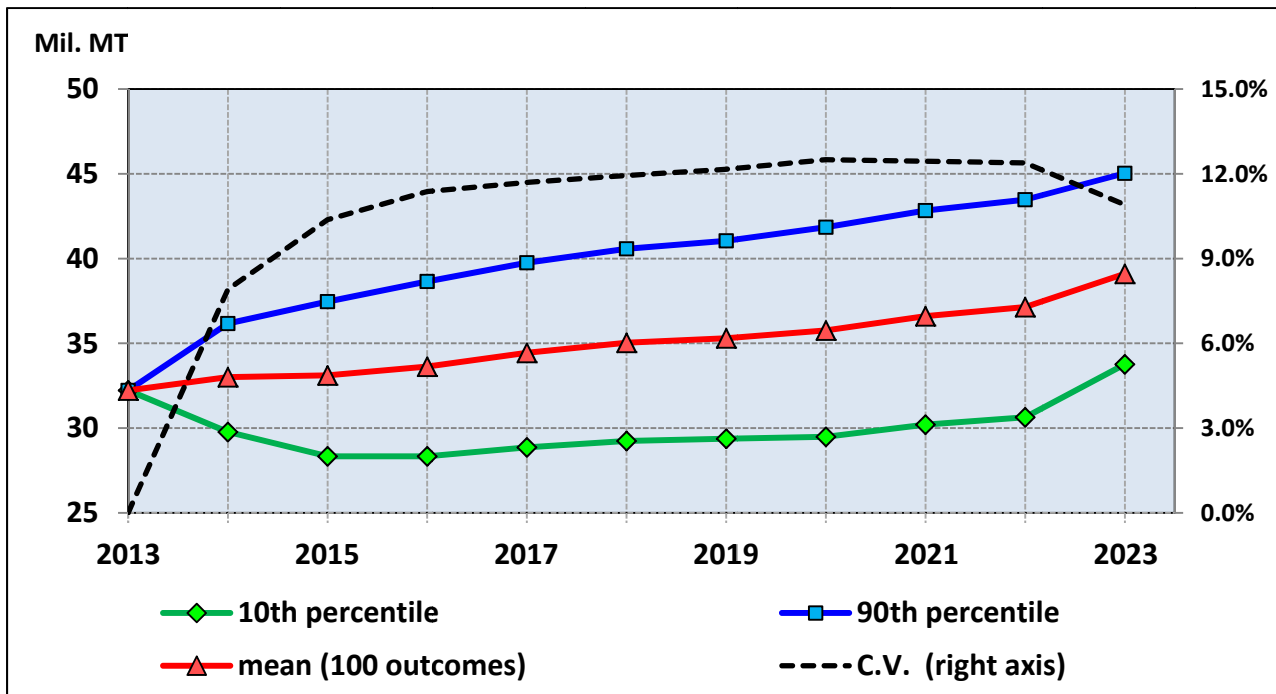


Figure 24 Stochastic Projection of World Rice Net Trade.

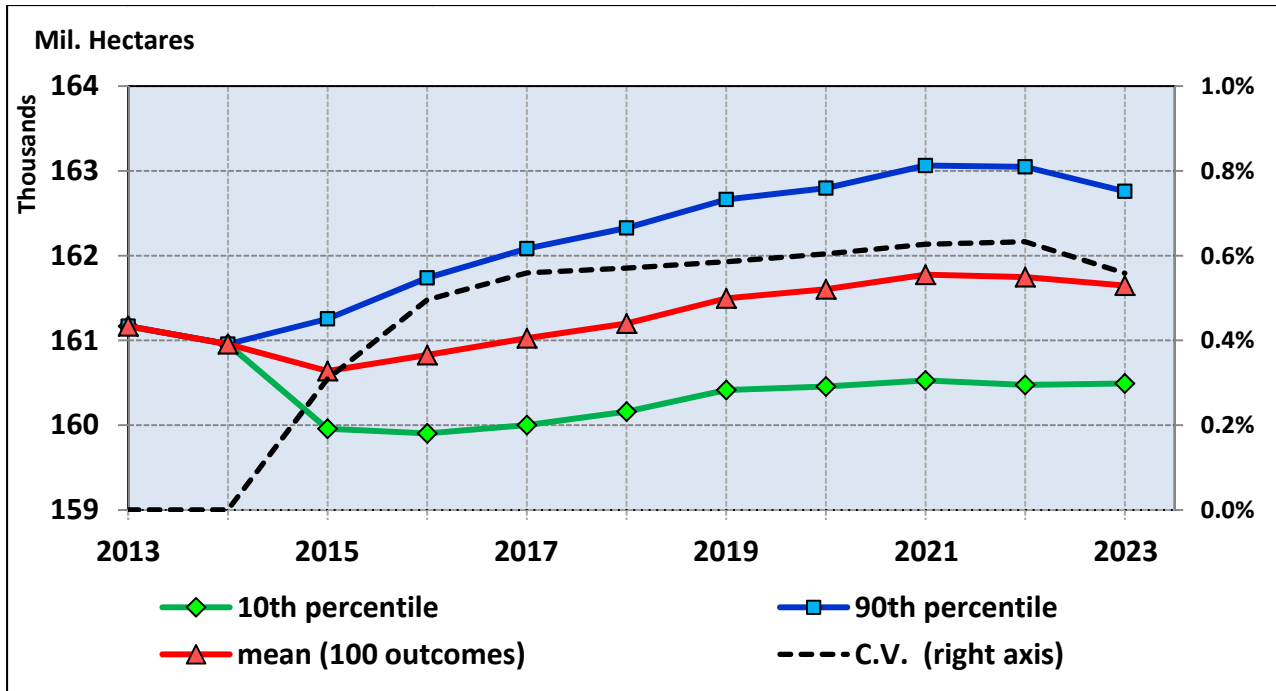


Figure 25 Stochastic Projection of World Rice Area Harvested.

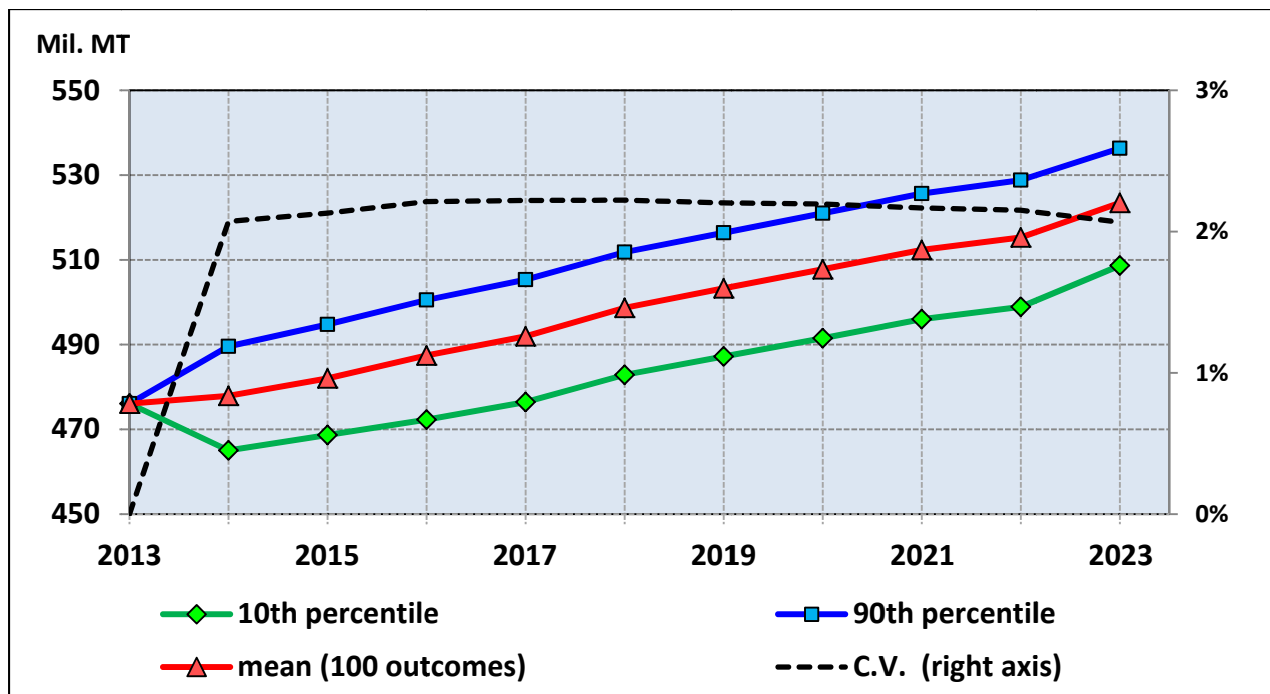


Figure 26 Stochastic Projection of World Rice Milled Production.

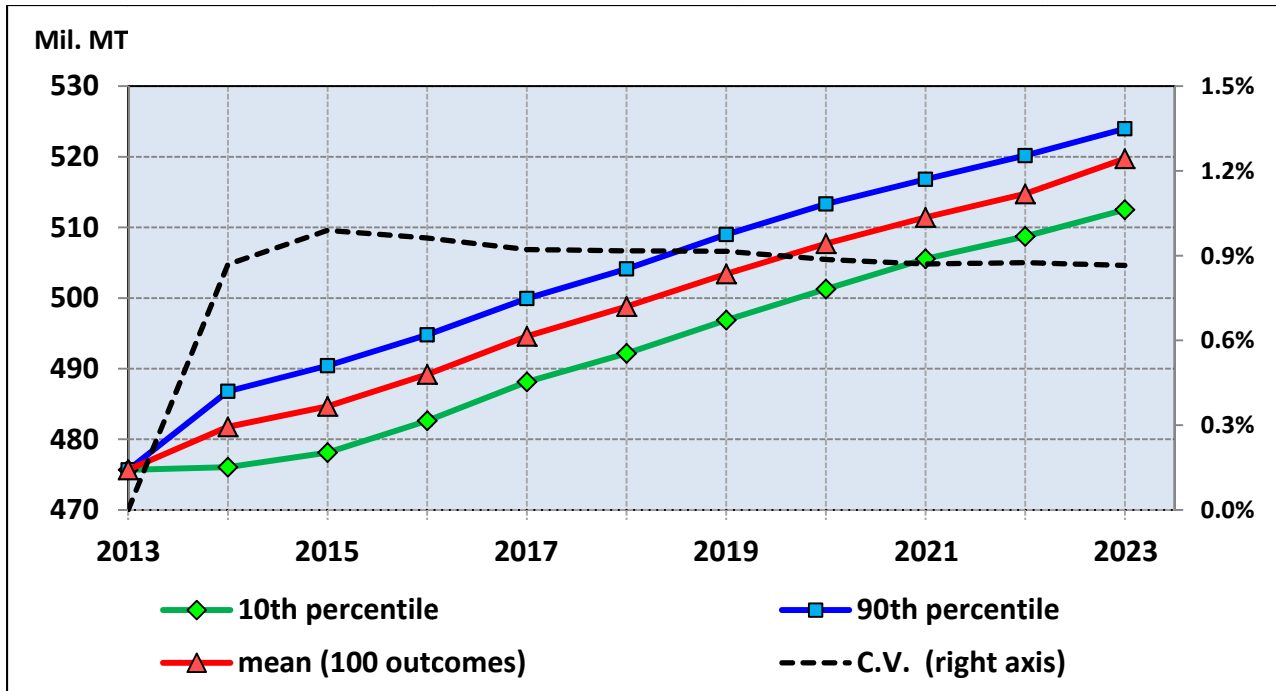


Figure 27 Stochastic Projection of World Total Rice Consumption.

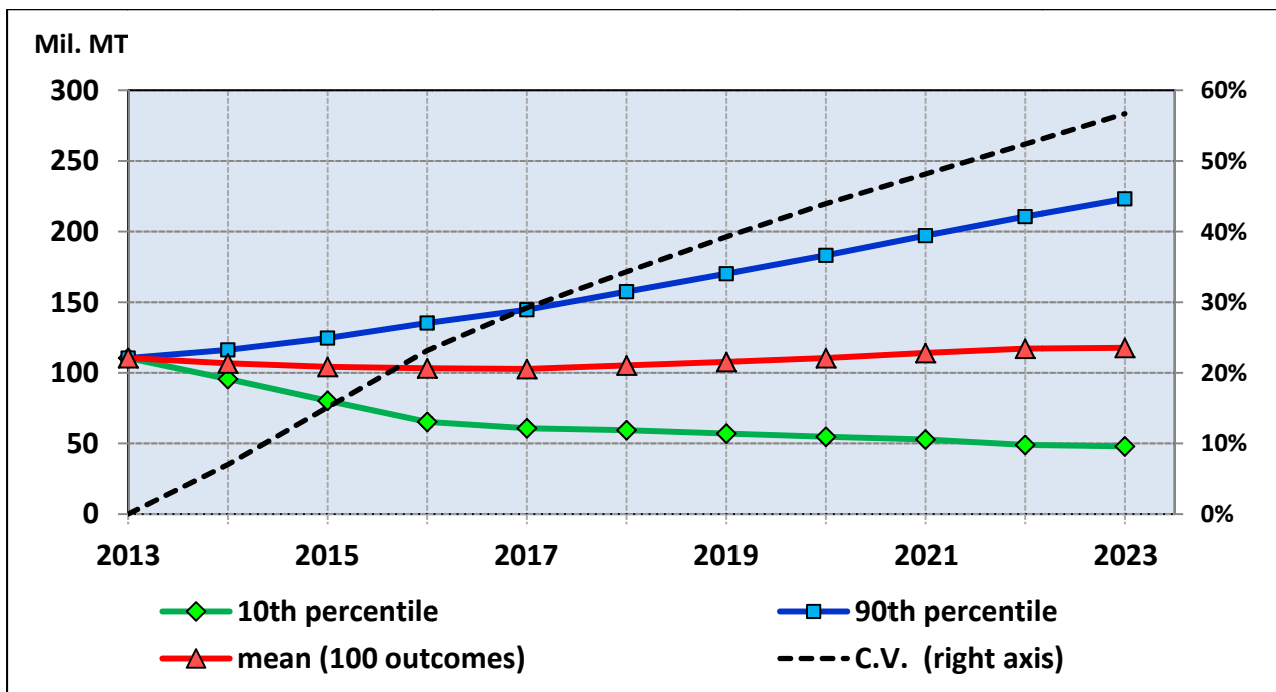


Figure 28 Stochastic Projection of World Rice Ending Stocks.

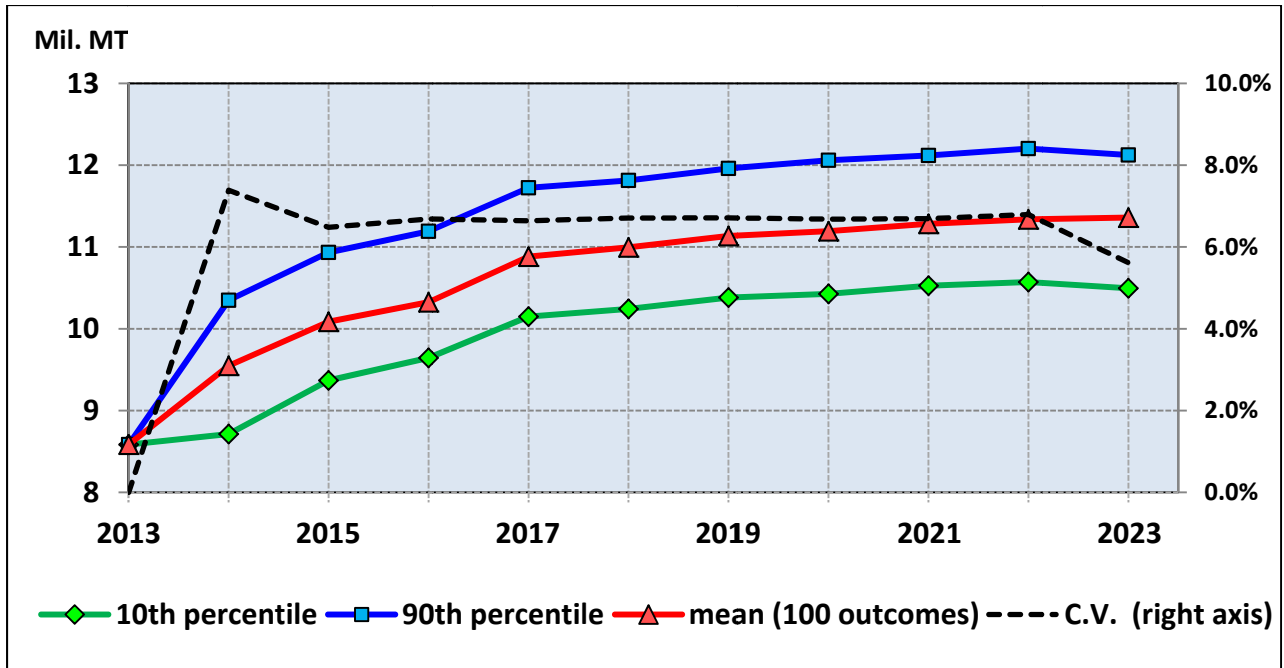


Figure 29 Stochastic Projections of Thailand Net Rice Exports.

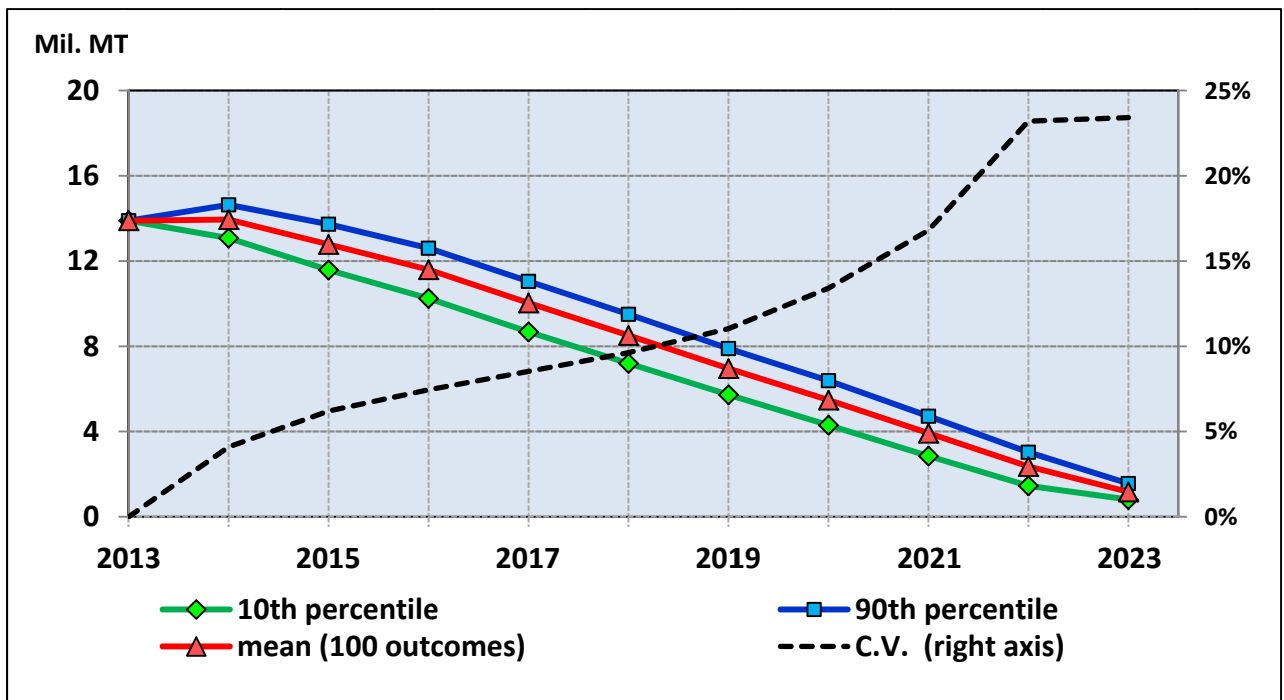


Figure 30 Stochastic Projection of Thailand Rice Ending Stocks.

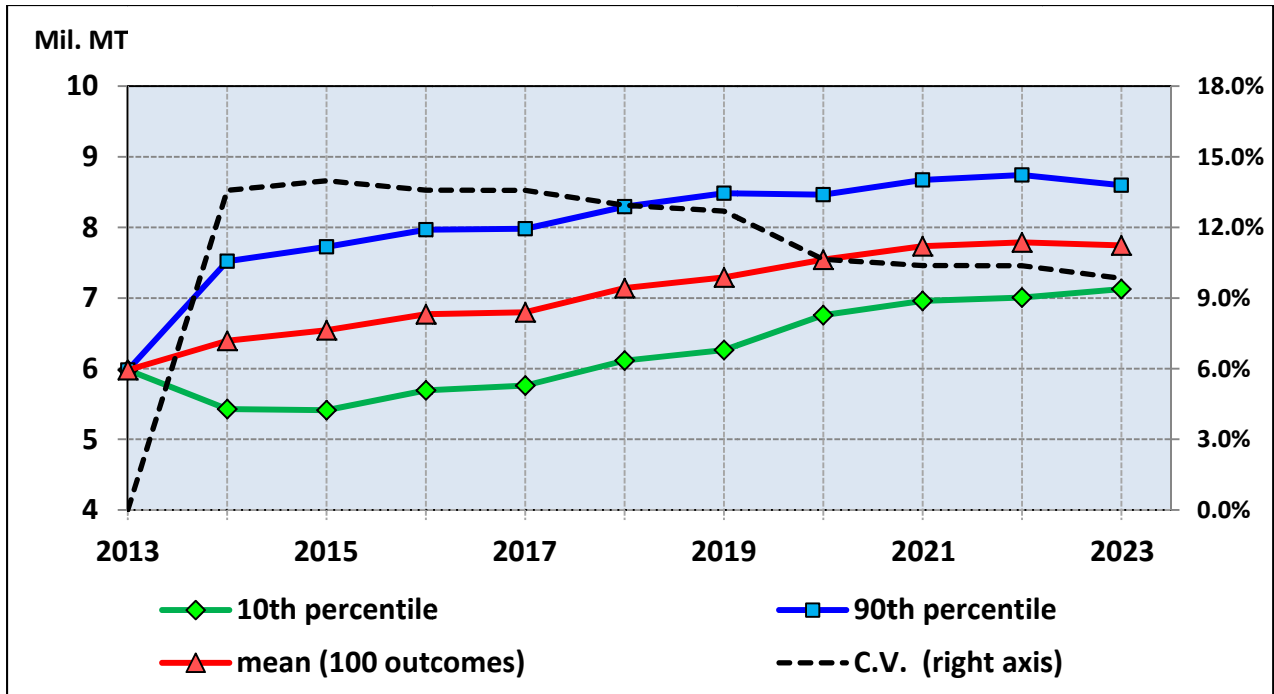


Figure 31 Stochastic Projections of Vietnam Net Rice Exports.

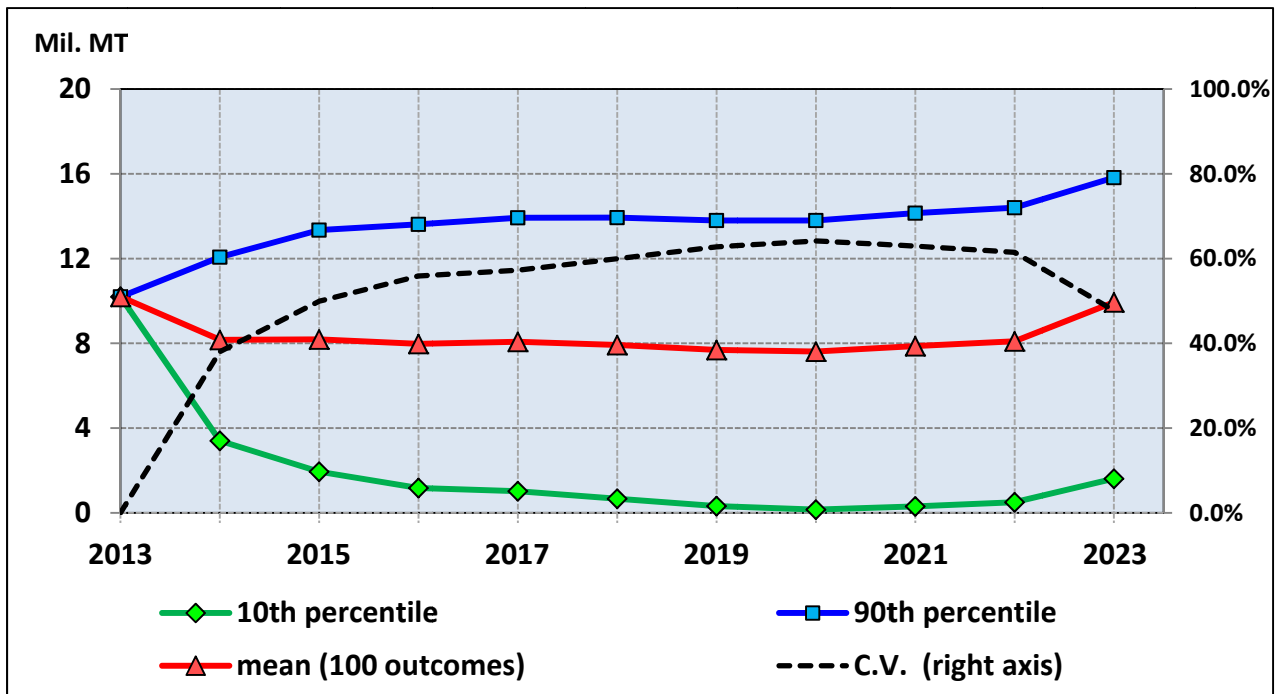


Figure 32 Stochastic Projections of India Net Rice Exports.

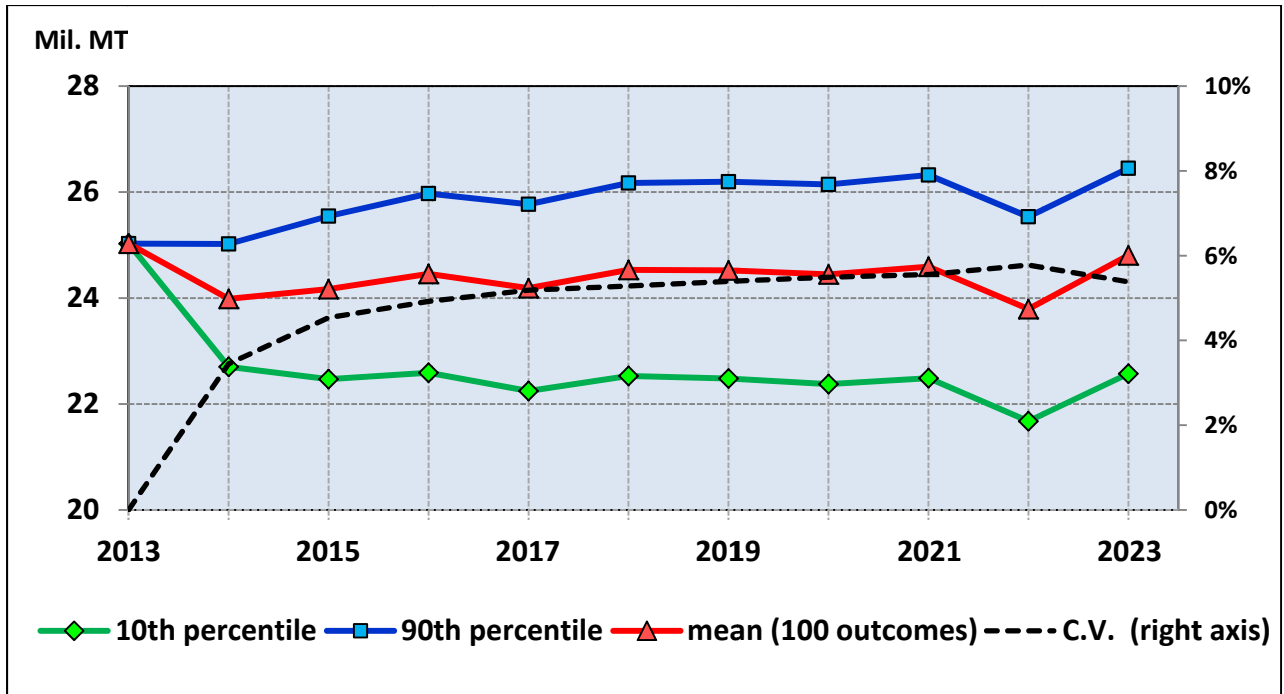


Figure 33 Stochastic Projection of India Rice Ending Stocks.

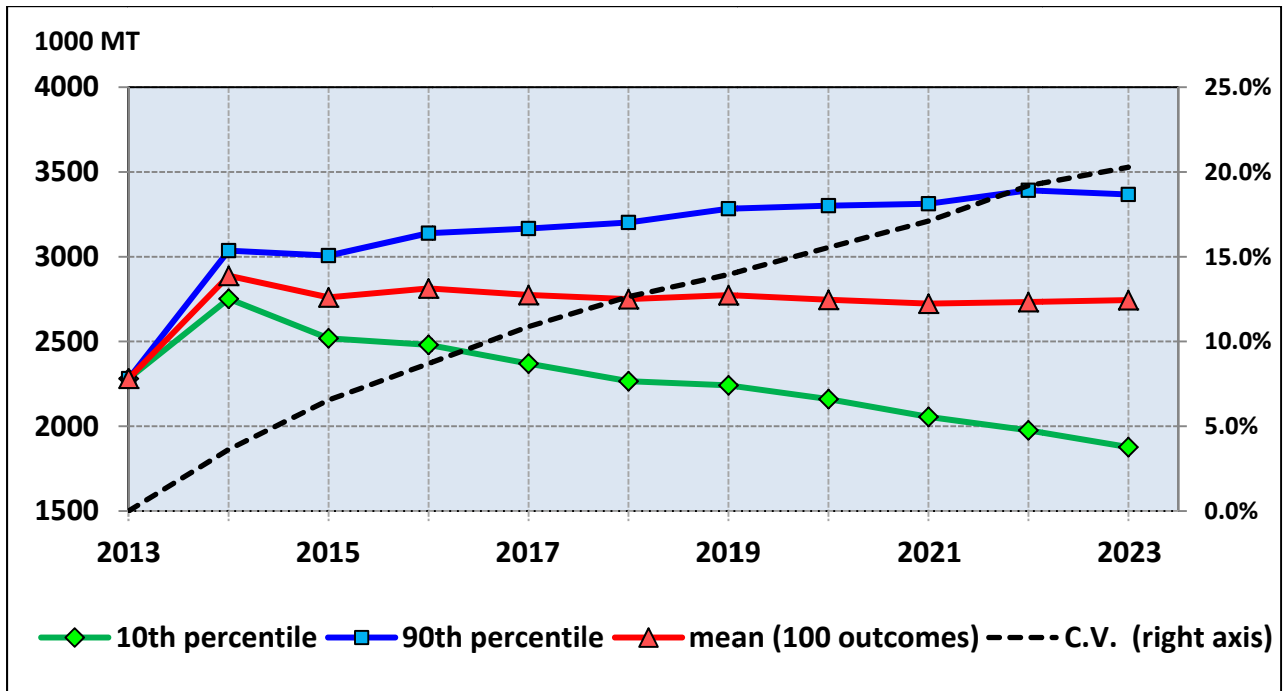


Figure 34 Stochastic Projections of U.S. Net Rice Exports

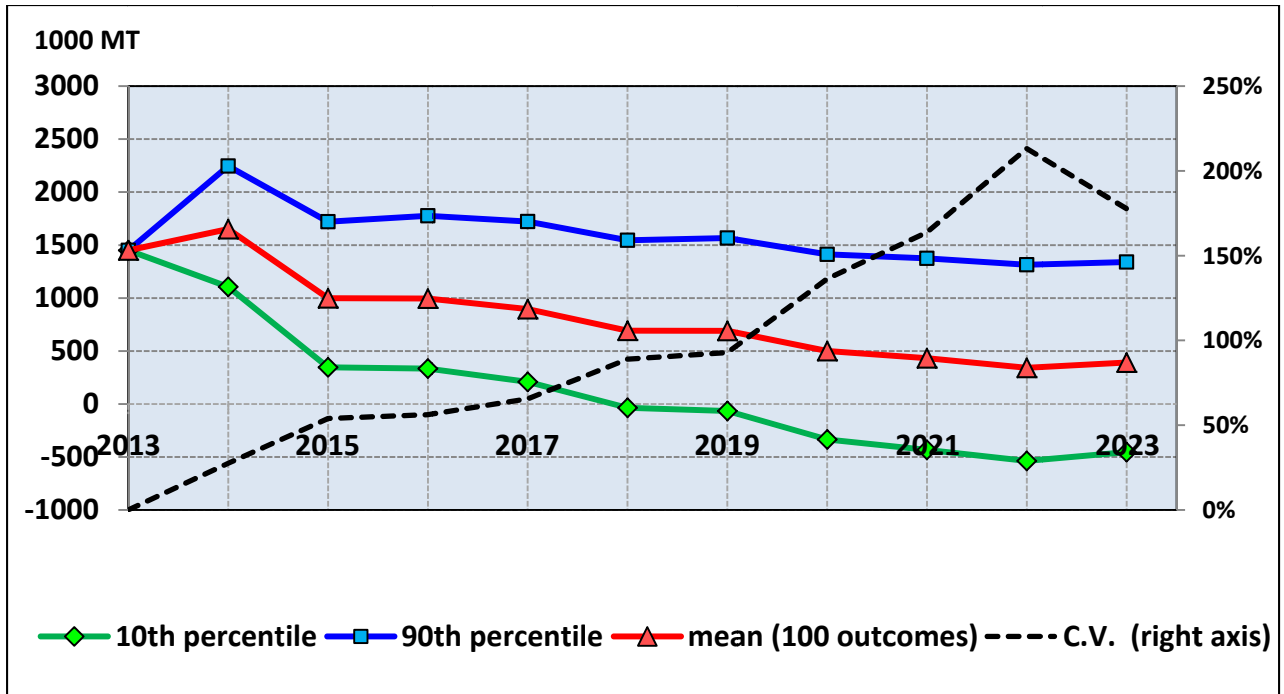


Figure 35 Stochastic Projections of Philippine Net Rice Imports.

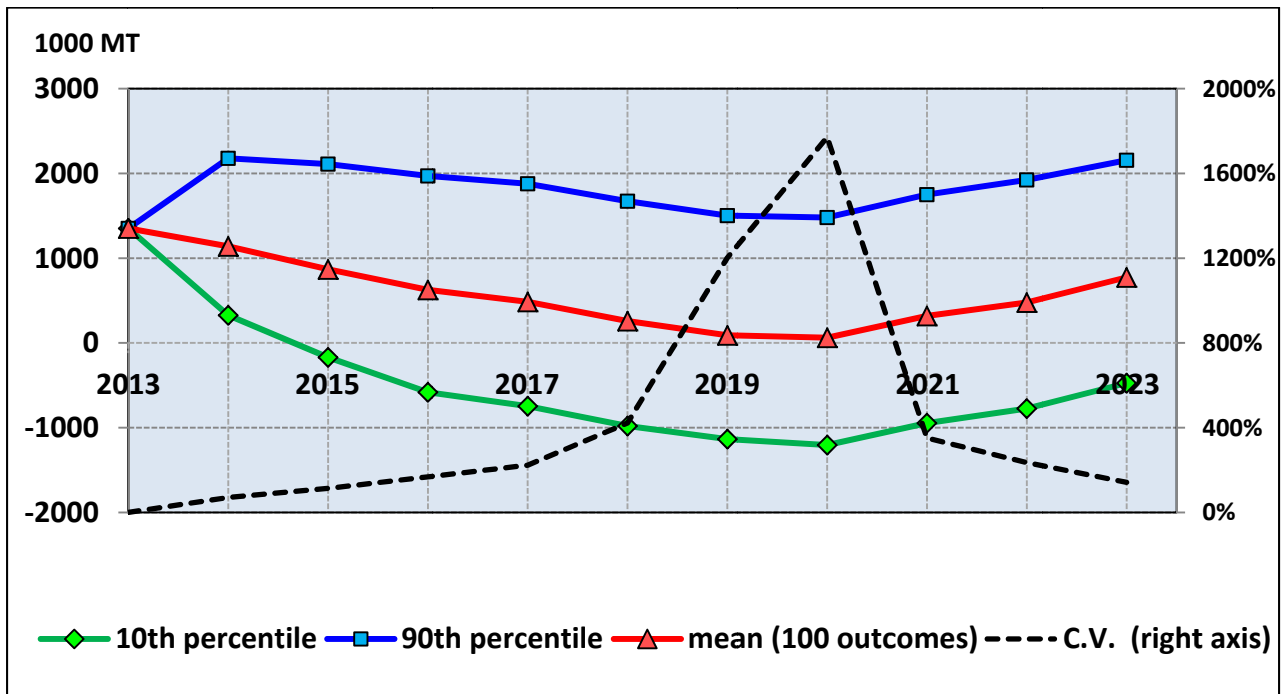


Figure 36 Stochastic Projections of Indonesia Net Rice Imports.

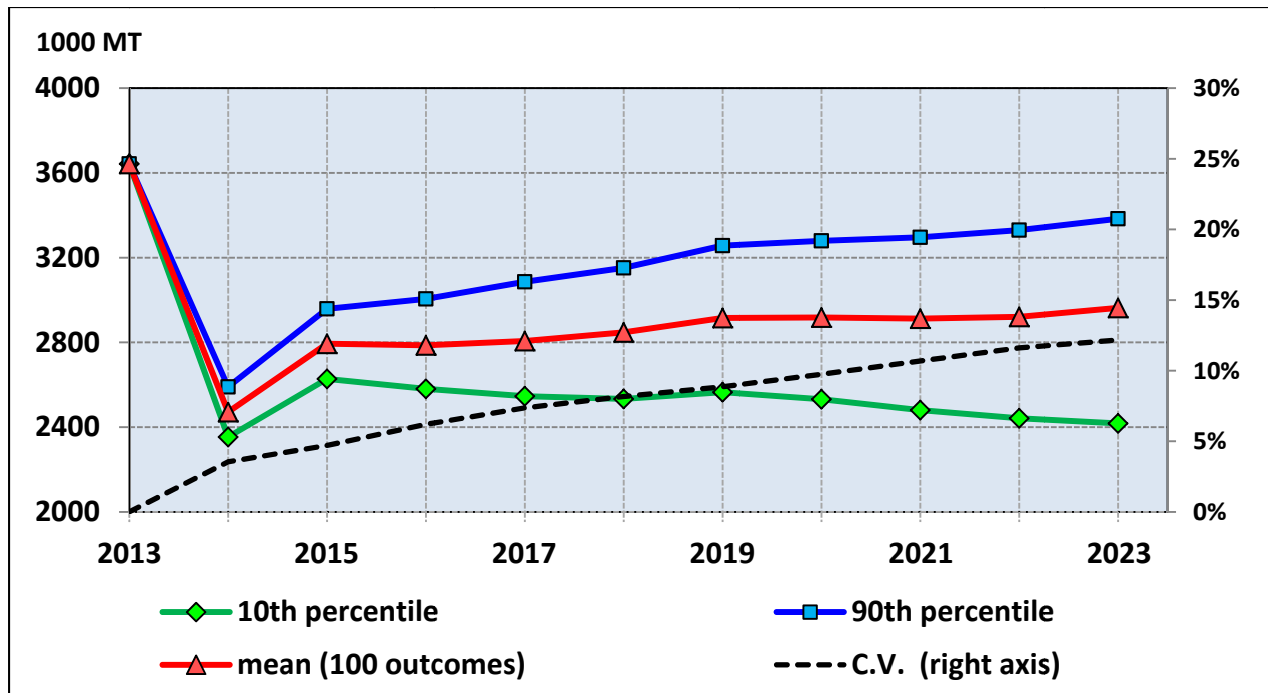


Figure 37 Stochastic Projections of People’s Republic of China Net Rice Imports.

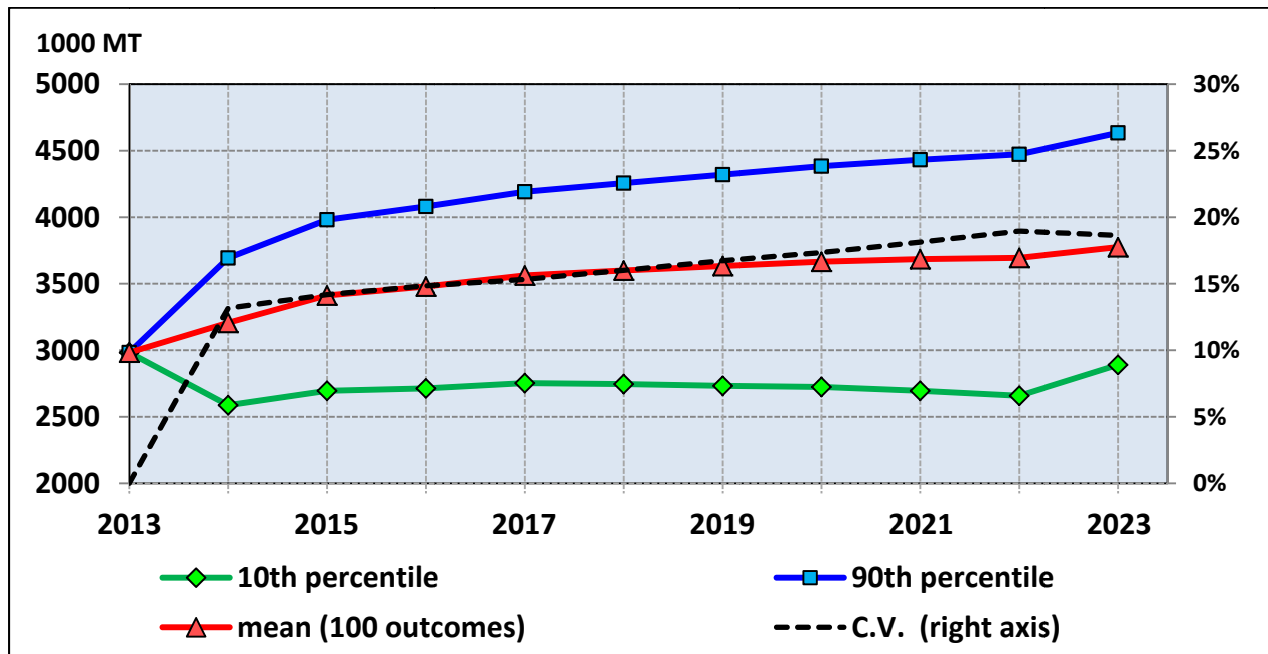


Figure 38 Stochastic Projections of Nigeria Net Rice Imports.

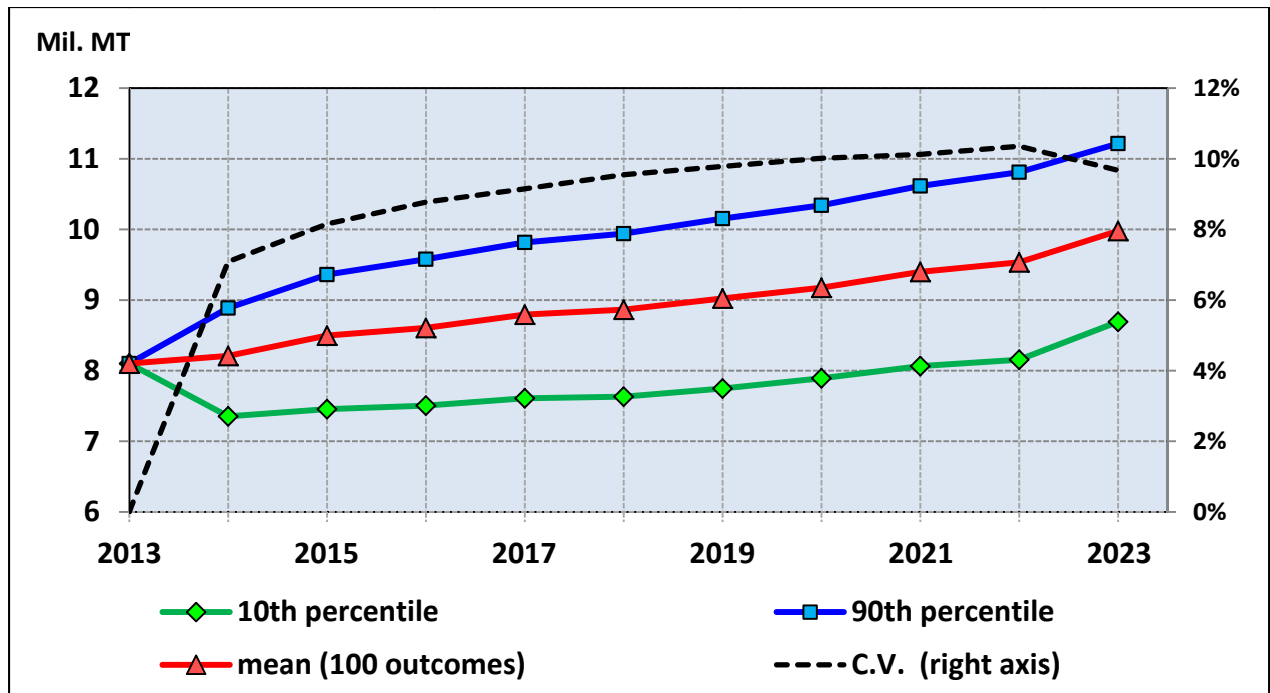


Figure 39 Stochastic Projections of ECOWAS-15 Net Rice Imports.

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