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World Corn Use Expands Despite High Prices in 2012/13

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USDA country-level data for corn supply and use indicate that, in aggregate, global corn disappearance continued to expand in 2012/13, rising about 1.1 percent over 2011/12 despite high world corn prices. While the data published in USDA's current World Agricultural Supply and Demand Estimates (WASDE) indicate a 1.8-percent year-to-year decline in global corn use (World Domestic Total) in 2012/13, that decline is mostly the result of trade adjustments to the aggregate consumption total and does not mirror the by-country estimates of domestic corn use. The two measures of global corn use—the trade-adjusted total reported in WASDE and the sum USDA by-country data—typically provide very similar results but differ significantly for 2012/13 because trade patterns resulted in an unusually large trade adjustment in recent years. The USDA by-country data indicate that world corn disappearance responded relatively little to prevailing record-high prices in 2012/13, with growth slowing from 1.43 percent in 2011/12 to 1.1 percent in 2012/13, instead of reversing growth as indicated in the trade-adjusted world totals. Both measures of global corn disappearance indicate strong growth projected for 2013/14, although the trade-adjusted measure exaggerates the increase.

Historical Global Corn Use Expanding by Both Measures

Since 1960, global corn use measures (fig. 1), whether or not they are adjusted for trade, have been very close, with an average annual difference of 1.6 million tons, or three-tenths of a percent of average use. The two measures of use clearly described the same general trends. The coefficients of variation (CV) for the two series are nearly identical (0.2 percent difference). Both measures show world corn use over the last decade growing at a stronger rate than earlier in the series, reflecting the global expansion of feed and industrial use for corn.

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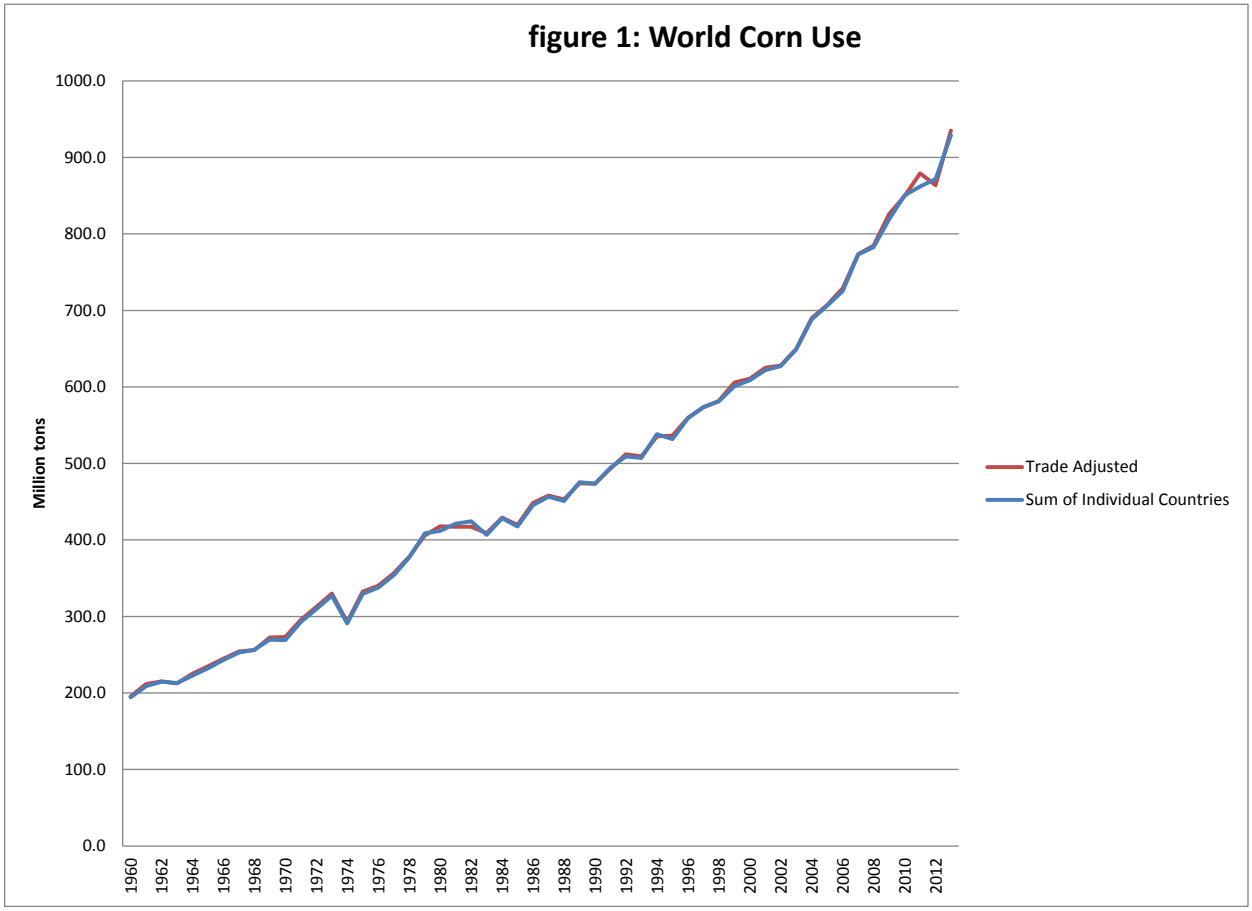
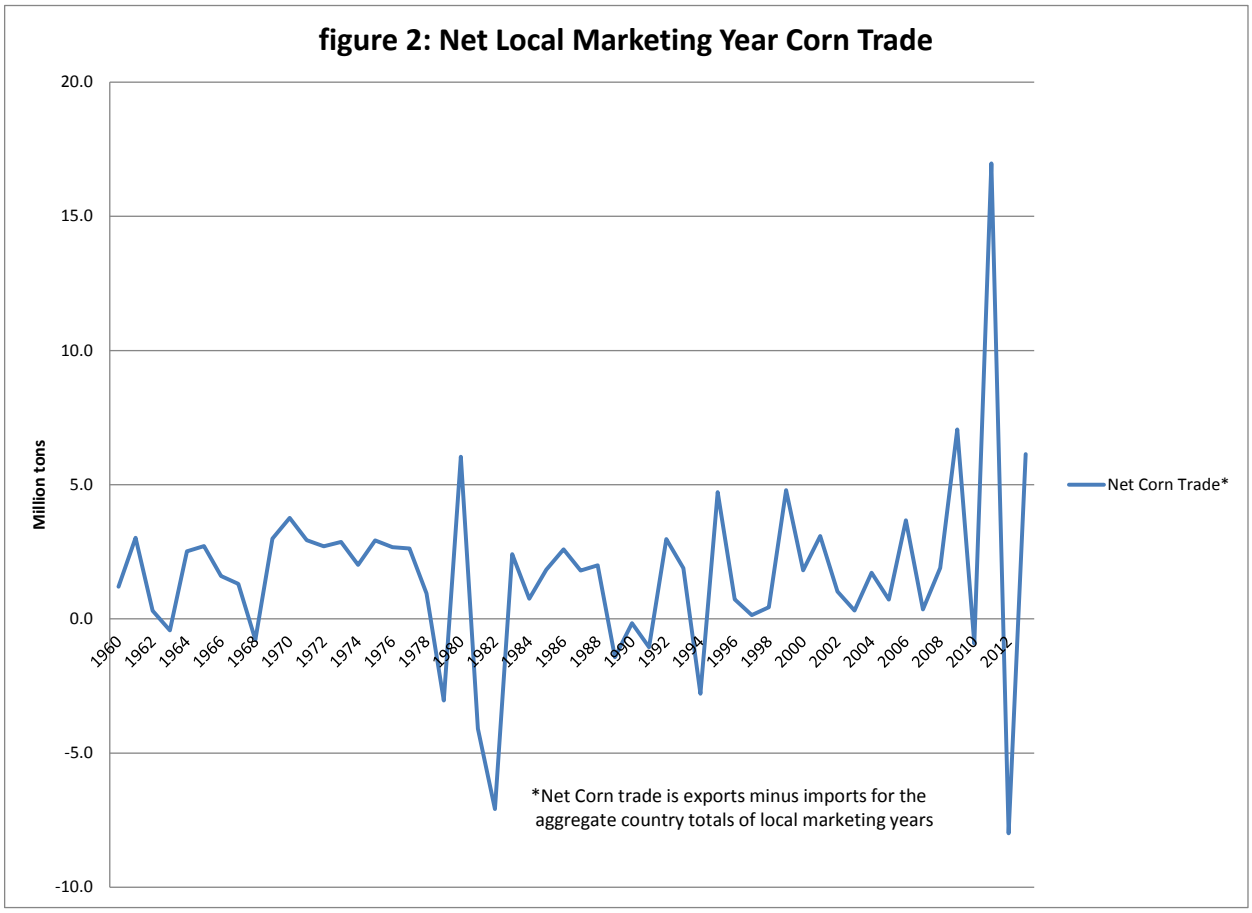
[1] In this article, corn consumption, use, and disappearance are used interchangeably. USDA estimates of historical and future corn use are divided into two categories for each country in the database: food, seed, and industrial (FSI); and feed and residual. The residual part of "feed and residual" includes any errors in the other pieces of the supply-and-demand balance where beginning stocks + production + imports = domestic use + exports + ending stocks.

Unusually Large Trade Adjustment Leads Measures To Diverge in Recent Years

In 2010/11, 2011/12, and 2012/13, year-to-year fluctuations in corn trade caused shifts that piled corn use into the WASDE 2011/12 trade-adjusted consumption estimate, which in turn indicated a decline in 2012/13 global corn use over that of the previous year. Since record-high corn prices have prevailed during 2012/13, the decline in this measure might be interpreted as a demand response to high prices, but the decline is just a function of the net local marketing year trade adjustment (fig. 2). In 10 of the 52 years of historical corn estimates, local marketing year imports were larger than exports. But the 2011/12 and estimated 2012/13 year-to-year net trade adjustments are the largest in the historical series.





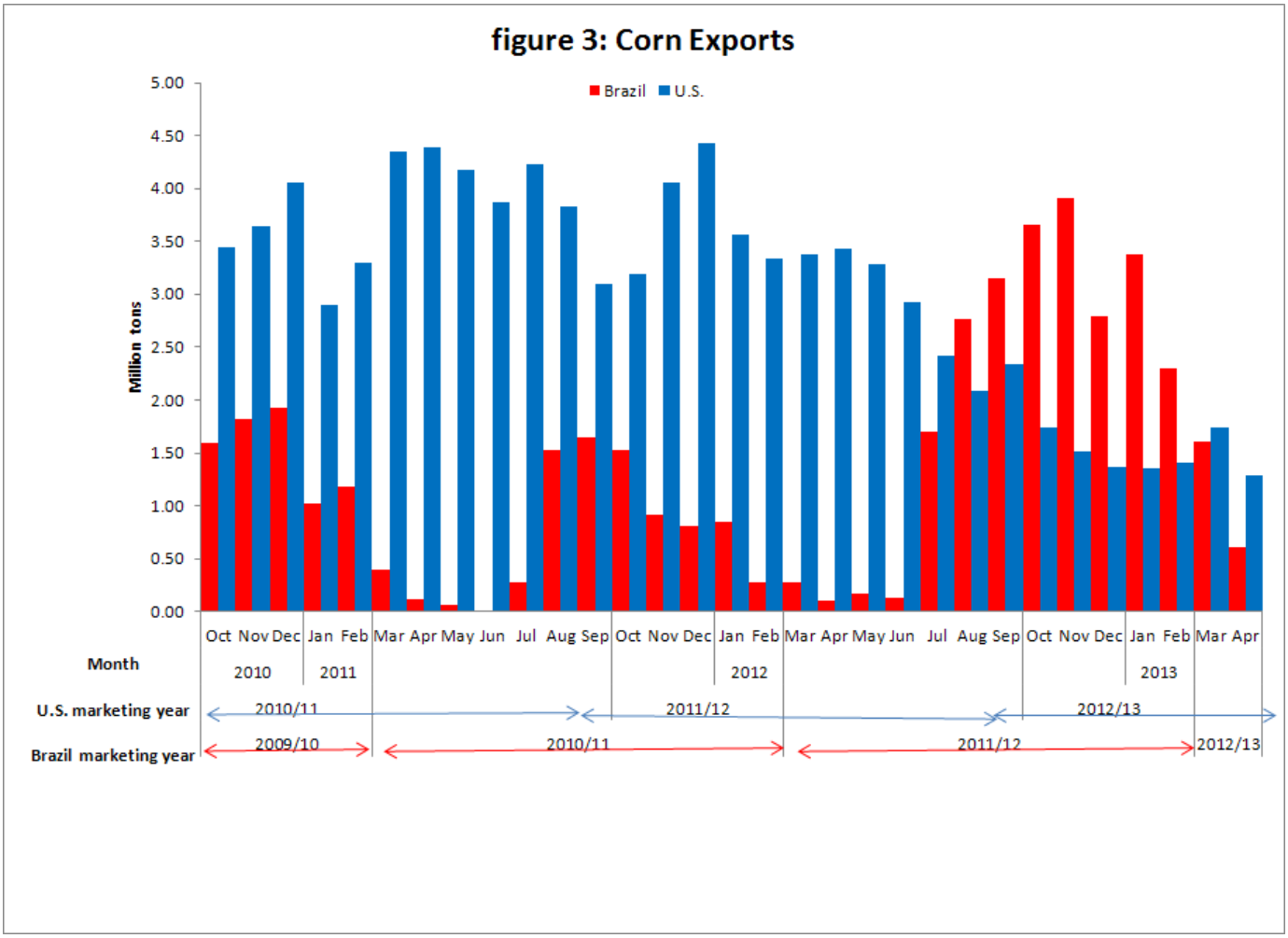
The bulk of the abnormally large trade adjustment occurred in the Brazil data. As Brazil exported record amounts of corn from October 2012 through February 2013, those shipments fell into Brazil's 2011/12 local marketing year, beginning in March 2012 (fig. 3). However, most of those exports went to countries in the Northern Hemisphere, arriving in their 2012/13 year. Boosted by Brazil's record exports (and exports from Argentina and other Southern hemisphere countries), the trade adjustment to global corn use for 2011/12 is a record-large 16.8 million tons, representing an additional 2 percent of world use on top of the sum of each country's use. However, in 2012/13, the large imports by Northern Hemisphere countries are boosting forecast imports above exports by a record 7.5 million tons, depressing world corn use as calculated in WASDE by that amount. The trade-adjusted totals included in WASDE forecast world corn use down 15.0 million tons in 2012/13 from the previous year. However, it is just a function of the trade adjustment, as unadjusted world corn use is projected up 9.3 million tons in 2012/13, nearly as much as the 11.7-million-ton increase estimated for 2011/12 (table 1 and fig. 4).

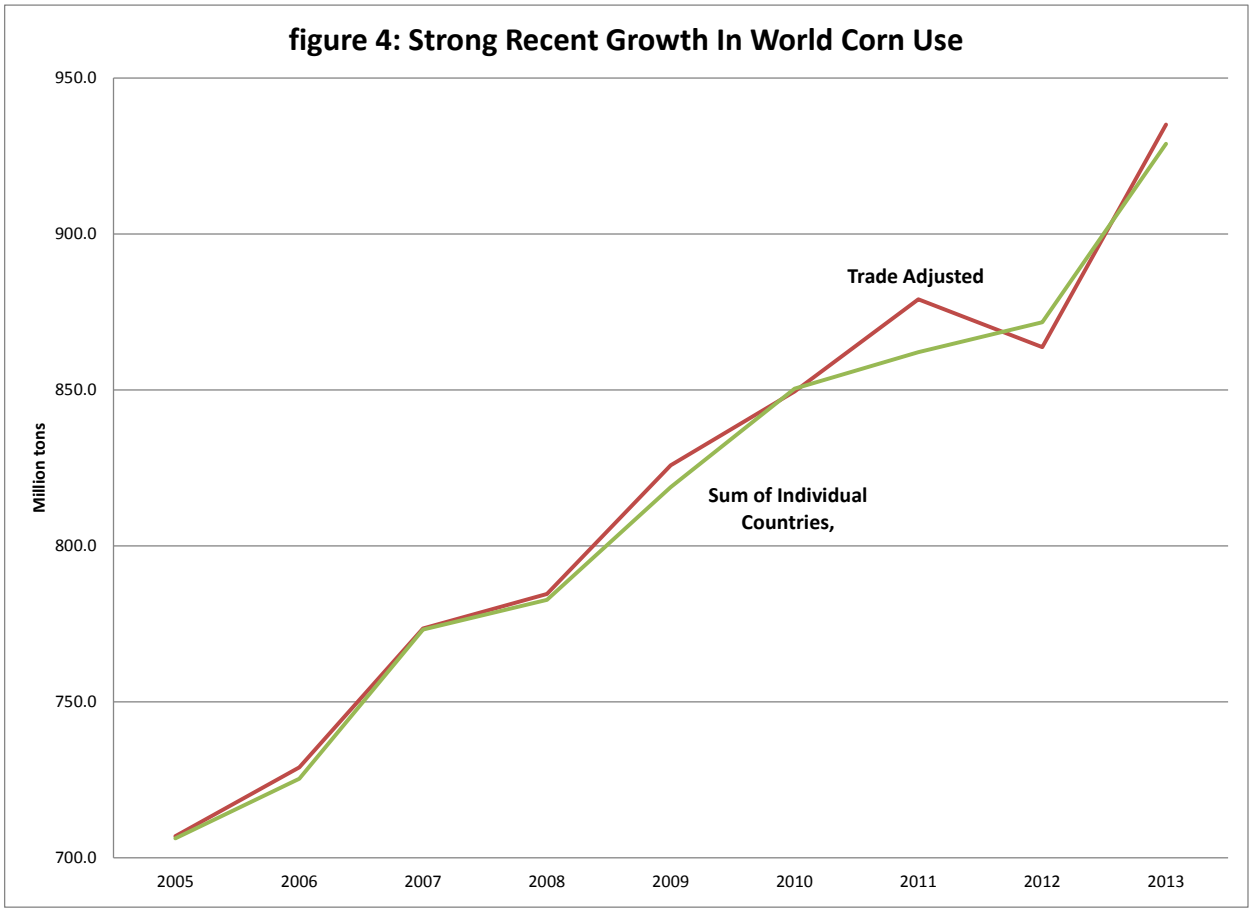
Table 1:

World Corn Use

(million tons)

Year	WASDE Trade Adjusted	Sum of All Countries	WASDE Use Minus Sum of Countries Use
2010/11	849.5	850.4	-0.9
2011/12	878.9	862.1	17.0
2012/13 (estimated)	863.9	871.4	-8.0
2013/14 (projected)	936.7	930.8	6.1





Unadjusted corn use in 2012/13 is estimated to grow about as rapidly as that in the previous year, even though corn prices peaked in many places in 2012/13. This means that demand for corn in 2012/13 is stronger and less price responsive than portrayed in the WASDE trade-adjusted numbers. In 2012/13, China is projected to have a sharp increase in corn disappearance, more than offsetting declines for the United States and the EU. In more than half of the other countries, corn demand in 2012/13 is projected up based on corn imports, production, and animal production during the first half of 2012/13. So far, in many parts of the world, livestock feeders and other corn consumers are absorbing price increases and are forecast to increase domestic use in 2012/13.

Taken in a broader context, USDA 2012/13 estimates portray a world responding to high corn prices, not by reducing demand but by pulling record corn exports from Southern Hemisphere 2011/12 supplies. This movement of corn from the Southern Hemisphere minimizes the actual reduction in corn use, even with very tight Northern Hemisphere supplies and high prices.

Reasons for the Alternative Measures of Supply and Use

USDA estimates corn use for each of 120 countries included in the corn database and publishes the information in the PS&D Online database on the USDA, Foreign Agricultural Service (FAS) website. When "world" and "domestic corn use" are selected, the database query returns the sum of all countries' use. In WASDE, however, world use is adjusted for global net trade, with local marketing year exports added to use and imports deducted (usually a positive adjustment, though occasionally negative). In most years, this calculation provides a more

complete measure of world use because nearly all exporters are included in the database while some small importers are not. So if corn was exported, it was consumed somewhere. For example, in recent years, U.S. corn exports to Barbados have been about 35,000 tons each year. While Barbados is not included in the corn database, the corn shipped there is consumed, and by adjusting global consumption for net trade, the WASDE provides a more complete measure of world use.

The inclusion of a block of net importing countries outside the database is implicitly recognized in the grains trade tables published by FAS in the Circular Series "Grain: World Markets and Trade," which includes a line for "Unaccounted" as part of imports. In the circular, each country in the database has imports and exports estimated for the same 12-month trade year, which is October through September for corn. The "unaccounted" line includes not only importers not in the database but also other accounting problems in the trade data. One such problem may occur when a shipment leaves an exporter, such as the United States, in the last week of the trade year but does not arrive until the following month in a country, like Japan, whose import data are used to track imports. Other sources of potential statistical error also exist. [2]

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[2]According to the Circular's endnotes, the term "unaccounted" includes grain in transit, reporting discrepancies in some countries, and trade to countries outside the USDA database.

In WASDE, each country's corn supply and demand is estimated on a local marketing year basis, starting with the harvest. This allows for the calculation of ending stocks at the lowest point in the year, a useful tool for market analysis. For example, for U.S. corn, the local marketing year is September- August, 1 month earlier than the international trade year, while for Brazil the local marketing year is March-February, 5 months after the start of the trade year. Each country's domestic corn use is only estimated for the local marketing year, so the global use numbers put together U.S. and Brazil estimates that are different by 6 months. Each country's imports and exports are separately estimated for the local marketing year and for the international trade year. The trade that is associated with and consistent with each country's domestic consumption is imports and exports on a local marketing year. So WASDE takes each country's corn use, adds them up, and then adds local marketing year exports and subtracts local marketing year imports. On a global basis, local marketing year imports and exports are not equal, but for the October-September trade year published in the FAS circular, the "unaccounted" in imports makes exports and imports equal, and world trade balanced.

In months when forecast local marketing year imports and exports are changed, calculated global use can change, sometimes significantly. For example, in the March 2013 WASDE, 2012/13 local marketing year global corn export forecasts were cut 1.9 million tons, while global imports were virtually unchanged. This made sense because Brazil's October 2012 through February 2013 corn exports were strong, increasing Brazil's 2011/12 local marketing year, but U.S. export sales and shipments for the same period were slow, cutting the U.S. 2012/13 local marketing year export prospects. Projected 2012/13 corn use by country in March increased 2.3 million tons, but with net trade cut 1.9 million, the WASDE measure of world domestic use for 2012/13 increased only 0.4 million.