

From the Desk of...

Larry Jeddelloh

Global Investment Strategist

Issue No.47 - January 2010



© copyright The Insight Bureau Pte Ltd / Larry Jeddelloh

Malthus meets Frosty: Larry Jeddelloh, Founder, Managing Director and Chief Investment Officer of TIS Group re-examines global demand for food and the impact on prices of grain

Demand for food is driven by economic growth as well as population growth. Urbanization in China and India is bolstering food demand by increasing per-capita calorie consumption, as well as increasing the demand for meat and edible oils. This trend will continue regardless of the global economic environment as continued urbanization is a political and socio-economic mandate, not a function of global growth.

Urbanization is also leading to a reduction in farm acreage and rapidly depleting fresh water supplies. Slightly more than 40% of global grain production takes place on the 19% of farmland that is irrigated. Aquifers around the world are depleting very rapidly and no region is immune. The largest aquifer in the United States, the Ogallala Aquifer, lies beneath parts of eight Midwestern states. Water levels in the Ogallala Aquifer have fallen by more than 100 feet since the 1940's, to an average saturated thickness of only 200 feet today. By 2020, the amount of land irrigated by the aquifer is predicted to drop by 20%.

The only certainty in the grain and soybean markets is that supply will ultimately equal demand, requiring pricing mechanisms to ration calories. Recent studies of the elasticity of grain demand indicate that a 5% increase in grain prices is needed to destroy 1% of demand. Over the next five years, on average, to destroy sufficient demand to balance the markets. The price impact may be greater than anticipated as grain and soybean inventories are at historically low levels and the global harvested land area is currently above the

long term trend.

The grain and soybean prices projected by our supply/demand models are quite bullish, despite the fact that they do not incorporate our global cooling thesis. When we examine the potential price impacts of global cooling, history suggests that prices will climb by 40% to 50% in late 2010 or 2011 as a shortened growing season significantly reduces yields.

In 1798, British economist Thomas Malthus observed that populations grow exponentially while food production grows arithmetically, until it reaches some upper limit dictated by the amount of arable land. He predicted food production would eventually become a constraint on population growth. While his basic premise was correct, his predictions proved to be incredibly inaccurate as there were several factors that he did not consider: demand for food is driven

by economic growth as well as population growth. Food demand was lower than Malthus anticipated through the 1800's as economic growth was largely confined to Western civilizations. The 1900's brought rapid increases in crop yields as the gasoline engine enabled farm automation as well as widespread mechanical irrigation. At the same time, scientific advances created new seed varieties, fertilizers and crop protection chemicals. In addition, we believe that solar cycles have significantly impacted crop yields. While history shows that advances in farm-related technology can significantly improve yields, we believe that

We calculate that grain and soybean supplies will be 2.81% below demand. We estimate that grain and soybean prices must increase by 14.05% per year through 2014 (92.96% in total)

recent trends such as global urbanization and the re-emergence of China as an economic power will make it impossible for crop production to keep up with food demand over the next ten years without significant demand destruction from increased grain prices.

What are Grains? Grains, or cereal grains, are essentially flowering grasses which include corn, rice, barley, sorghum, millet, oats, rye, triticale and buckwheat. In 2007, 87.8% of global grain production was provided by three grains: corn (33.8%), rice (28.2%) and wheat (25.8%). Grains have become an important part of our overall diet due to their high calorie content and the ease of which they can be grown. It is estimated that worldwide, 44% of our calories come directly from grains. If we incorporate grains used in the production of livestock (nearly 50% of grain calories produced in developed nations) and soybeans (an oilseed rather than a grain), these four crops provide an estimated 75% of our total caloric intake.

Crop Prices: Like many commodity prices, crop prices are driven by the change in the supply-demand balance. This is best represented by the change in inventories. Although the statistical correlation between ending corn inventories and corn prices is very low (.07) due to the varying magnitude of the price reaction of corn to changes in inventories, we find that ending inventories are an excellent directional indicator. Over the past twenty years, ending corn inventories (Sept) have fallen on a YOY basis during nine years. Corn prices have risen during the twelve months following inventory declines in seven of those nine years (77.77%). Ending corn inventories increased during eleven of the past twenty years, resulting in a decrease in corn prices in eight of the eleven

years (72.72%) following the inventory builds. For all major grains (corn, rice and wheat) and soybeans, the average price of each of these four crops moved in the opposite direction of ending inventories in the twelve months following the inventory change 70% of the time during the past twenty years. The years in which major grain and soybean prices did not move in the direction suggested by ending inventories were often years in which the oil price move dramatically. Oil is a major input cost of farming both directly (diesel fuel to run machinery and fuel to run irrigation systems) as well as indirectly (seed costs and fertilizer costs), resulting in a total of 40% to 60% of crop production costs relating to energy prices. Over the past twenty years, the correlation between the average price of the three major grains and soybeans to the price of oil was – 82.29%. This correlation is likely to grow over time as an increasing portion of global crop demand comes from the production of ethanol. In 2008, roughly 16% of global corn production was used in ethanol production. In addition, both oil and grains are global commodities and are thus equally affected by changes in exchange rates, increasing the statistical correlation.

Our conclusions are that grain prices that will more than double by 2014, with water shortages significantly constraining food production growth. We believe that protein prices must increase, that farm land prices will continue to climb and that farm incomes will increase and that low income emerging markets will face both benefits and risks.

Note: This article was written from excerpts from The Institutional Strategist Macro Thematic Reports written and edited by Larry Jeddelloh. To find out how to obtain this and/or other TIS reports please email us.

About Larry Jeddelloh and The Insight Bureau

Larry Jeddelloh is considered to be one of America's best-respected independent investment strategists. Based in Minneapolis, USA, he is the founder, Managing Director and Chief Investment Officer of the TIS Group. During his 30 year tenure in the industry, along with the deep network of contacts spanning multiple continents, Larry brings unique perspective to his research. His outlook for the world economy and for the financial markets reflects are keenly sought-after. He has strong international exposure, spending over one third of his time travelling to Europe, the Middle East and Asia and focuses extensively on the commodity markets such as grains, oil and precious metals.

The Insight Bureau provides speaker placements and briefings as a service that helps achieve a better understanding of the world in which we do business and to ultimately help senior executives to make better business decisions. The Insight Bureau represents Larry Jeddelloh globally for speeches and briefings.

www.insightbureau.com

+65-6300-2495

engage_us@insightbureau.com

Disclaimer: The Insight Bureau Pte Ltd accepts no liability for the content of this document or for the consequences of any actions taken on the basis of the information provided. Any views or opinions presented herein are solely those of the author(s) and do not represent those of The Insight Bureau.