

Virginia Cooperative Extension



Farm Business Management Update June - July 2012

Farm Business Management Update is a joint effort of the Agricultural and Applied Economics faculty and the area farm management educators. Subject matter areas include timely information on farm management, marketing, tax management, finance, credit, labor, agricultural law, agri-business, estate planning, 4-H economic education, natural resources, and CRD. Please feel free to reproduce any article. However, please cite the title, author(s), date, and this newsletter.

Farm Business Management Update is electronically accessible via the Virginia Cooperative Extension World Wide Web site (www.ext.vt.edu/news/index.html). To see the articles listed in the reverse chronological order, look under the listing of “Newsletters,” then select “Farm Business Management Update.”

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Item	Page
The Management Calendar	1
Challenges and Opportunities for Virginia Corn Producers in the Chinese Market.....	3
Why Enterprise Budgets?	10
Is Local Food Production Profitable?.....	12

The Management Calendar

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Listed below are the items that should be considered for inclusion on the farm business managers' calendar for spring and summer of 2012:

- Half the business year will soon be behind us and a six-month financial record check-up is in order. Updating your records through the month of June allows you to quickly gauge financial progress by comparing the farm's actual expenses and income to your budgeted amounts. If you did not develop a budget, compare your mid-year expenses and income to half the items reported on your 2011 Schedule F. Flag any items that are different from budgeted amounts. These differences are not necessarily problems, just items that need to be examined and explained.
- Watch your line-of-credit and be sure to keep in touch with your lender. They all know that we are in a time of uncertain returns. Yet, it's just good business practice to keep them informed of major changes (positive and less positive) and that you are managing the situation with alternative strategies for each conditional outcome.
- Production records for livestock and crops should be updated for the first half of the year. Look for big changes from last year, and make sure to cross-reference these with production expenses.
- Even with the time constraints of summer activities, try to plan and hold regular staff meetings with family members and employees to discuss work plans and set priorities for the next day/week. Consider brainstorming about alternative ways to deal with problems. Use some of the time to help discuss positive outcomes of previous plans, and recognize individuals for being creative and doing a good job.
- Checking your credit rating in July should become an annual event. Independence Day should remind you that you should be independent from identity theft and credit mistakes. All individuals and business owners should annually check their credit rating. Additional information on your rights to access your credit report and links to the site for obtaining a free copy of your credit report can be found at the Federal Trade Commission's (FTC) web site at www.ftc.gov/freereports. The FTC cautions consumers to make sure they use the correct site because there are "Imposter" sites.

Selective information available that might be useful for summer reading or bookmarking:

- A must read for all of us involved in agriculture is the current issue of "Choices," published by the Agricultural and Applied Economics Association and can be found at www.choicesmagazine.org/. Two themes were highlighted in the first quarter issue of 2012:
 - Potential Impacts of 2010 Dietary Guidelines for Americans - Will the Dietary Guidelines for Americans be any more effective at changing food consumption patterns and reducing obesity than the previous guidelines? A series of four theme

articles can only begin to scratch the surface in providing answers to these, often politically charged, questions.

- Can the Dietary Guidelines for Americans 2010 Help Trim America's Waistline?
- Will the 2010 Dietary Guidelines for Americans be Any More Effective for Consumers?
- Geographic Impacts on U.S. Agriculture of the 2010 Dietary Nutrition Guidelines
- Will Local Foods Influence American Diets?
- Creation Rural Wealth - Promoting rural wealth creation in the United States is a high priority of the U.S. Department of Agriculture (USDA) and of a growing number of rural development organizations. This set of articles explains why a focus on wealth creation is important, discusses recent efforts to promote rural wealth creation, and explores what is known from past research.
 - Wealth, Entrepreneurship, and Rural Livelihoods
 - Latino/a Wealth and Livelihood Strategies in Rural Midwestern Communities
 - Federal Forest Policy and Community Prosperity in the Pacific Northwest
 - Red Light Ahead: Preparing Local Governments Financially for the Next Disaster
- Policy Issue: Immigration and Farm Labor: What Next? - Over half of the hired workers employed on U.S. crop farms have been unauthorized for the past two decades. Immigration reforms could affect farm labor costs, which in turn could reduce especially the demand for farm labor. This article explores the major potential immigration policy reforms and their implications for agriculture.
- New from USDA Economic Research Service (ERS) is an interactive web tool that is interesting and informative. The Atlas of Rural and Small-Town America is a mapping application that provides a spatial interpretation of county-level, economic and social conditions along four broad categories of socioeconomic factors: people, jobs, agriculture, and county classifications. Maps are interactive and also provided for downloading and the raw data are can be downloaded as well. Data from the 2006-2010 American Community Survey have been recently added, including data on veterans, along with updated employment and unemployment estimates from the Bureau of Labor Statistics. See www.ers.usda.gov/data/ruralatlas/.
- USDA-ERS just updated their State Fact Sheets that provides information on population, income, poverty, food security, education, employment, federal funds, organic agriculture, farm characteristics, farm financial indicators, top commodities, and exports, for each State in the United States. See www.ers.usda.gov/StateFacts/.
- Want to know county-level population data and changes over time see this ERS web site for <http://www.ers.usda.gov/Data/Population/> recently released county and state data from the Census Bureau.
- Understanding the Time Value of Money by Don Hofstrand, retired Iowa State University extension agricultural economist penned this great resource for understand the basics of evaluating investments with a life of more than one year. See the web site for the Iowa State newsletter Ag Decision Maker at

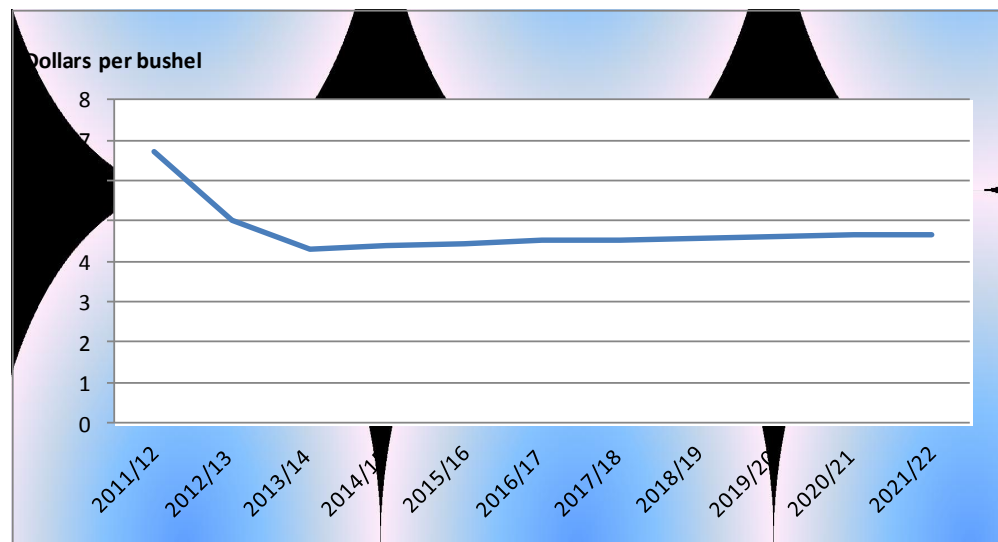
Challenges and Opportunities for Virginia Corn Producers in the Chinese Market

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Introduction: China's demand for United States (US) produced corn has grown dramatically during the past few years. On the other hand, the Chinese government has been implementing a number of policies that seek to increase national corn production via the adoption of modern production techniques, support to local producers, and a more efficient use of its enormous area of arable land. While China corn market presents some short-term opportunities for the US and Virginia grain producers, some possible challenges will likely arise in the future and change market conditions.

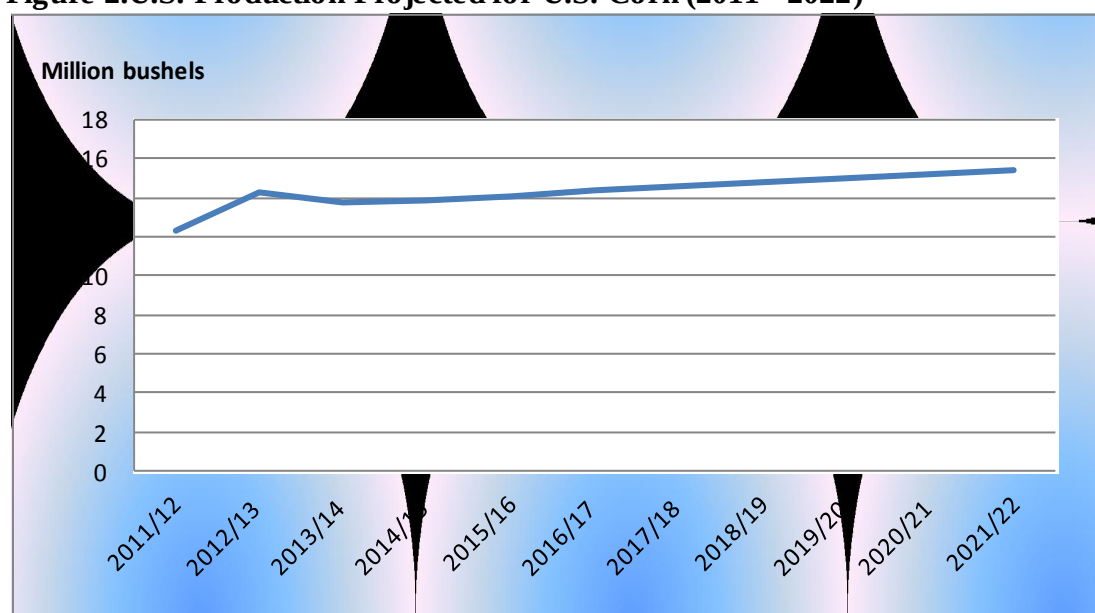
Corn Production in the USA and Virginia: Corn production in the US has been steadily growing for the last sixty years, and the production and processing of this commodity have become an important economic activity. According to the USDA-ERS (2012), corn is the most widely produced feed grain, and it accounts for more than 90 percent of total value and production of feed grains. Longer term increases in global purchasing power and population, competing against demand for biofuels and other domestic uses, are important factors that will shape US corn production and prices. Production and planted acres are expected to rise, but prices are expected to fall and then remain stable in the following decade as shown by figures 1 and 2.

Figure 1. Farm Price Projected for U.S. Corn (2011 - 2022).



Source: Authors' own calculations using data from the USDA

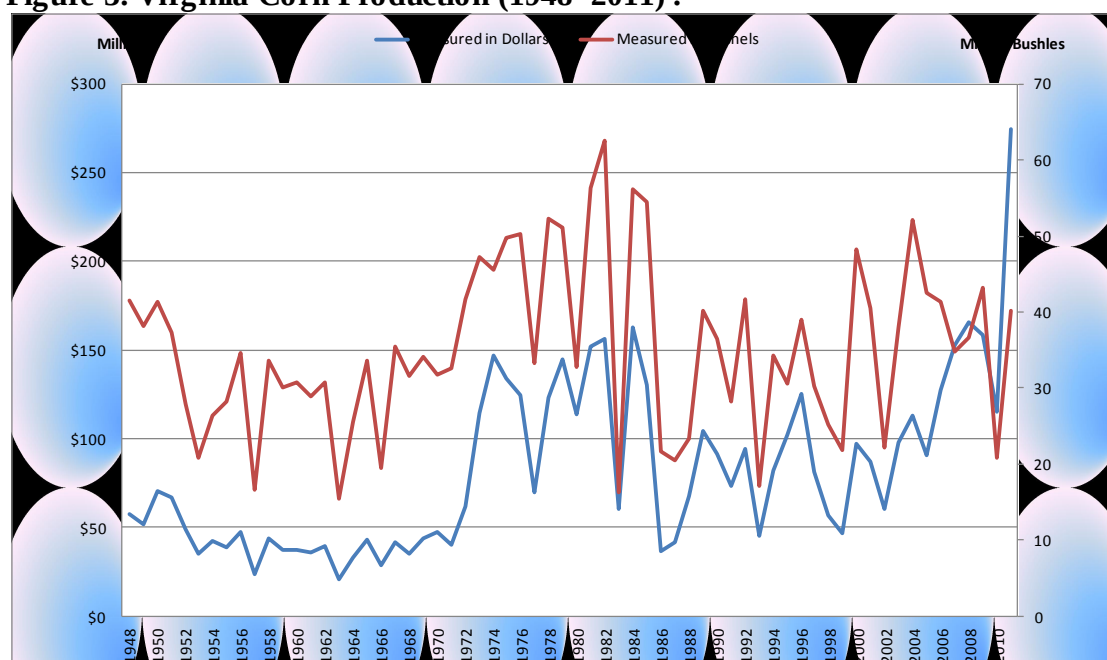
Figure 2. U.S. Production Projected for U.S. Corn (2011 - 2022)



Source: Authors' own calculations using data from the USDA

Most corn produced in Virginia is grown for grain, which generated \$94 million in cash receipts in 2010 and was the second most important cash crop, after soybeans (VDACS, 2012). Nevertheless, corn production in Virginia has been irregular and experienced important oscillations for the past five decades. In 2011, corn production in Virginia reached a maximum value of \$274,822,000 - mainly due to historical high prices.

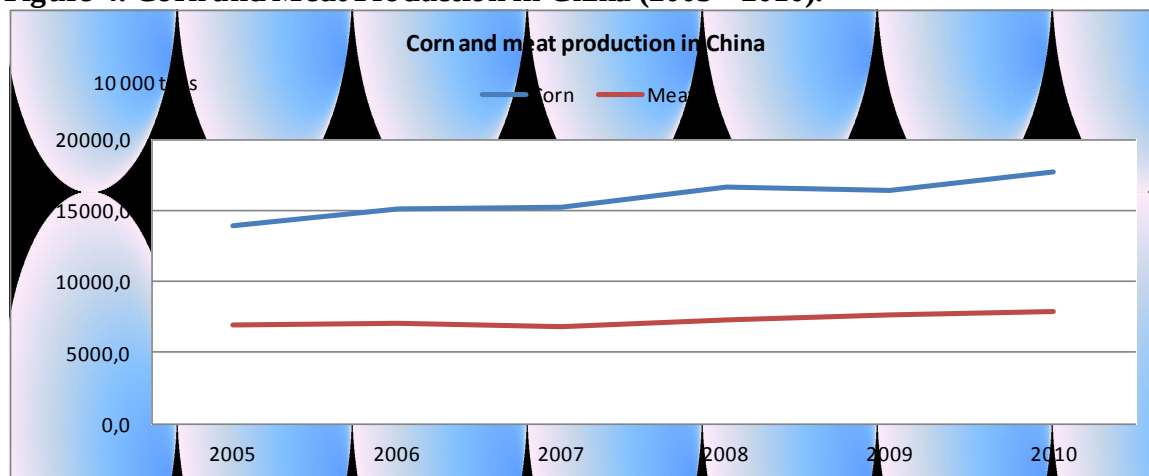
Figure 3. Virginia Corn Production (1948- 2011) .



Source: Authors' own calculations using data from the National Agricultural Statistics Service.

Corn Consumption and Production in China: The consumption of many agricultural products in China has been growing rapidly in volume and value, and corn has experienced the largest increase. This has been mainly due to an ongoing surge in domestic meat consumption, which in turn has been a consequence of rising incomes and a growing middle class. As families escape poverty, more Chinese will increase their food budgets and food consumption (Henderson, 2010). Furthermore, families are also diversifying and enriching their diets by adding more meat, fish, and dairy products to their diets (Seale, Regmi and Bernstein, 2003). While China is currently one of the world's largest corn consumers, it is also the second-largest corn-producing country in the world, and its domestic grain production goes primarily for animal feed and ethanol production (USITC, 2011). More recently, corn production in China has increased because of increased planting, good weather, the increased use of fertilizer, and strong government support to grain production (US International Trade Commission, 2011).

Figure 4. Corn and Meat Production in China (2005 - 2010).



Source: Authors' own calculations using data from the China Statistical Yearbook 2011.

The recent Chinese government support for agriculture is a signal of the relevance that this industry has for Chinese policy makers, and it includes the following programs:

- *Elimination of Certain Agricultural Taxes:* in 2003, the central government implemented a rural tax reform, lowering the tax burden on farmers. This gradual reform ended in 2006 with the elimination of all agricultural taxes.
- *Value-Added Tax (VAT) Exemption for Agricultural Products:* farms selling their products are exempt of the VAT (13 percent for food grains). China central government also refunds VAT to ethanol producers, in addition to other tax exemptions, compensations and production incentives.
- *Minimum Purchase Price:* is applied to farm-level purchases of corn. The program covers the northeastern provinces, including Heilongjiang, Inner Mongolia, Jilin, and Liaoning, in 2009/10.

Table 1. China: Government floor price for corn (2007–10).

	2007	2008	2009	2010	Purchase period
	RMB/mt				
Corn average floor price	1,400	1,500	1,500	N/A	December–April

Source: USDA, FAS, China, Peoples Republic of: Grain and Feed; Annual 2010, March 1, 2010.

In addition to this corn prices, the government encourages end users (mainly feed mills) and state trading companies in southern China provinces to purchase corn from northeast provinces.

- *Direct Payments*: Since 2004, Chinese central government has provided direct payment to farmers for growing corn, usually at the rate of RMB 10 per mu¹ of area sown to corn. Additionally, there are other payments that subsidize fertilizer, fuel, machinery and seeds.
- *Water Policies*: According to China's National Water Law, as revised in 2002, all property rights to surface water and groundwater belong to the state, including the right to use, sell, or charge fees. Farmers typically do not pay for surface water by volume, but instead pay a fixed amount based on the area they irrigate or for the use of a well.

Table 2 indicates how China has increased its production of grains, but also reveals an important increase in domestic consumption, in particular of feed, with an increase of over 43 percent from 2001 to 2013. Consequently, and in order to meet new market conditions, China has decreased its grains exports and increased its imports. More specifically, China grain imports have increased by 365 percent increase, while exports decreased by almost 97 percent for the past 12 years.

¹ MU: modern Chinese units. 1 mu = 0.165 acre units.

Table 2. China Coarse Grain of Metric Tons/Hectare (2001-2012).

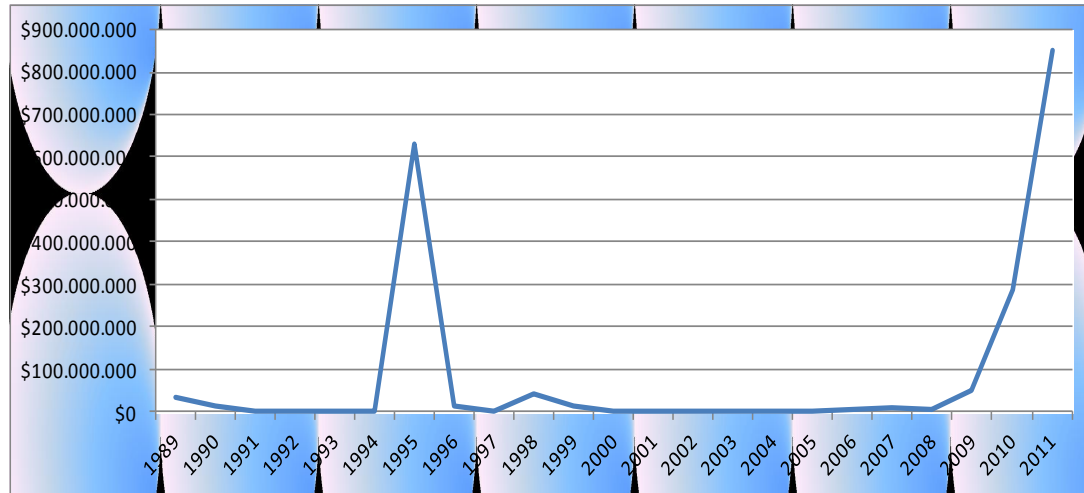
Coarse Grains*	Area Harvested	Yield	Production	Imports	Exports	Feed Domestic Consumption	Domestic Consumption	Ending Stocks
2001/02	27.3	4.5	122,4	2	8.6	96.3	133	85.6
2002/03	27.8	4.7	130,6	1,8	15.3	98.4	136,3	66.5
2003/04	26.8	4.6	124	1,5	7.7	99.1	138,3	45.9
2004/05	28.0	4.9	138,3	2,1	7.6	100.3	141,1	37.6
2005/06	28.8	5.1	147,8	2,3	3.8	103.5	147,1	36.8
2006/07	30.9	5.1	159,1	1,2	5.5	104.9	153,6	38.0
2007/08	31.9	5.0	159,2	1,2	0.9	106.7	158	39.4
2008/09	32.2	5.4	172,4	1,7	0.2	108.7	161,1	52.2
2009/10	33.4	5.1	169,8	3,8	0.2	118.7	173,2	52.4
2010/11	34.6	5.3	183,4	2,7	0.2	128.8	188,2	50.1
2011/12	35.6	5.6	198,6	7,1	0.3	131.9	196,6	59.0
2012/13	36.2	5.5	200	9,3	0.3	137.9	209,1	58.9

*Coarse grains generally refers to cereal grains other than wheat and rice (2012-13 are projections).

Source: United States Department of Agriculture United States Department of Agriculture Foreign Agricultural Service.

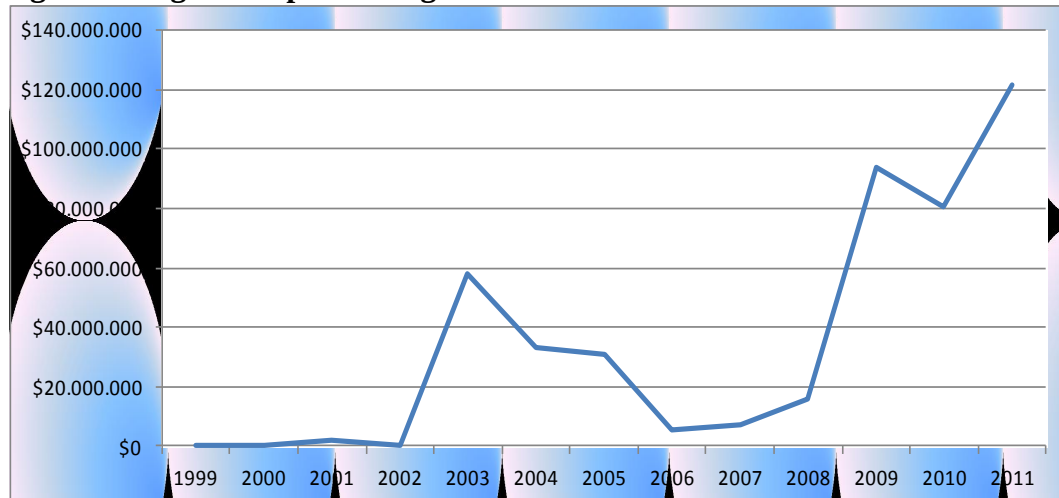
US and Virginia Agricultural Exports to China: The US plays a major role in the world corn market, with approximately 20 percent of its corn crop exported to other countries (USDA-ERS, 2012). After years of negligible trade activity, US exports of corn to China have soared recently. This increase in US exports was motivated by higher corn demand for livestock feed (rising 13 percent between 2005/06 and 2009/10), and by the growing demand for meat among the Chinese population (USITC, 2011). Additionally, a bad crop in 2009/10 crop forced China to increase its imports of US corn to meet demand and stabilize prices. In the case of Virginia agricultural exports to China, important increases took place in 2002 and 2003, followed by a decrease to previous levels due to the Avian Flu and BSE disease. Since 2008, agricultural exports began to raise again, and they surpassed \$121 million dollars in 2011.

Figure 5. US Exports to China of CORN (1989 - 2011).



Source: Authors' own calculations using data from the International Trade Administration.

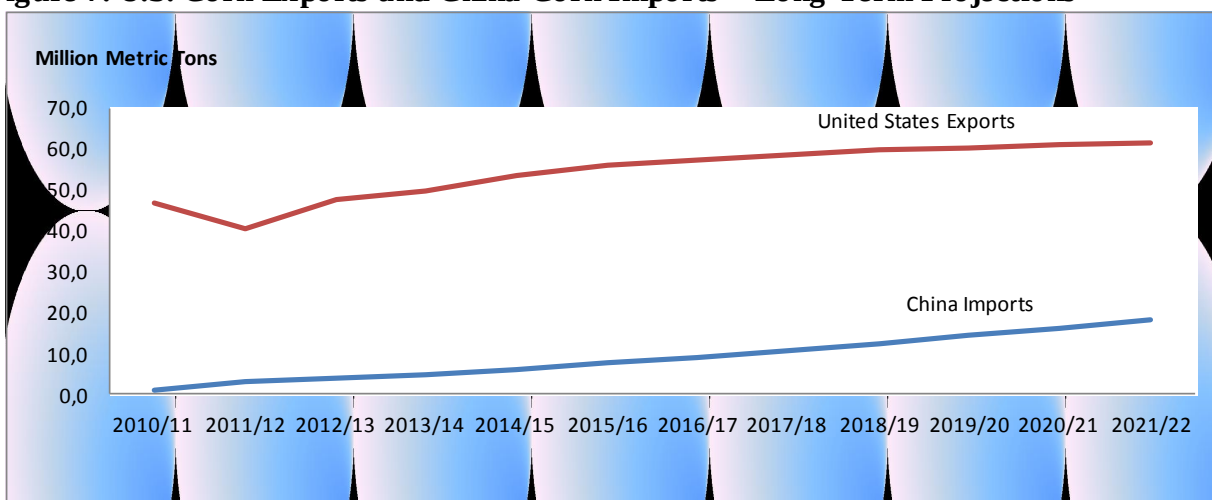
Figure 6. Virginia Exports of Agricultural Products to China.



Source: Authors' own calculations using data from the International Trade Administration.

Regarding the future trade, figure 7 shows that US corn exports are expected to continue growing in the next five-six years, and then stabilize. China imports are expected to show sustained growth during the next decade and will include a gradual substitution of U.S. corn for corn from countries like Brazil and Russia. Finally, since joining the WTO in 2001, China has reduced significantly its tariffs. Nevertheless, China imposes tariffs on imports of agricultural goods in the form of simple tariffs and tariff-rate quotas. Tariffs applied to corn are among the highest, applying a 65 percent ad valorem for over quota imports (USITC, 2011).

Figure 7. U.S. Corn Exports and China Corn Imports - Long-Term Projections



Source: Authors' own calculations using data from the USDA Agricultural Projections 2021.

Conclusion: Due to increases in domestic demand for corn and the lack of capacity of the Chinese agricultural system to meet that demand, China has become an attractive market for U.S. and Virginia corn producers – at least in the short term. This study shows that in order to meet its domestic demand, China has decreased its exports of grains and increased substantially its imports of grains. Nevertheless, in the long run, market conditions are anticipated to change and grain exporters will likely face a number of challenges that include: (1) an anticipated increase of Chinese corn production; (2) the implementation of non-tariff barriers; (3) and the substitution of U.S. imports for corn produced in other countries (i.e. Brazil and Russia).

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Why Enterprise Budgets?

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An enterprise budget is a simple concept for most farmers; listing out receipts (sales of products), variable costs (cost that change with production level e.g., fertilizer) and fixed costs (costs that do not vary with production, e.g., costs of owning machinery or a structure). Yet many of us forget that these budgets are the foundation for most of the day-to-day management decisions. Farm business managers that can detail their per unit fixed and variable costs for each crop and maybe down to the field-level have a decided advantage over managers that rely on commonly accepted ways of managing. The advantage is not that they know the costs but that they can use this information to make break-even yield, price, and acreage decision and estimate the net returns of alternative technology, input price changes, a decision to lease an additional farm, and so on.

Budgeting: The purpose of a budget is to list the annual quantities and prices of inputs involved in the production of a crop. The sum of the income items less total expense leaves an estimate of net income or returns to land/capital, management, and risk. The sales price is often the most variable factor and to some extent, is less under the control of management. Thus, budgets concentrate on the cost of inputs like fertilizer and seed (quantities applied are directly under management control). The breakdown of major budget categories and explanations are listed in Table 1.

Gross Receipts: Gross receipts are the sale price (value) times the units produced. In the planning stage, yield should indicate long-term average yields, not just the best of the last 10 years. Prices should be long-term averages and as you apply price protection and the season progresses you can fine-tune your estimates. Note: it's good to be an optimist in life, just not when you are estimating next year's crop yields or profits.

Example Abbreviated Budget for 1 Acre	
1. Gross Receipts	= quality sold * price
	Bushel harvested * \$/bu (120 bus * \$5.00/bus = \$600)
2. Pre-Harvest Variable Costs	
	Units of inputs * \$/unit (150 lbs of N * \$0.75/lb)
3. Harvest Variable Costs	
	Fuel, Lubrication, and Repairs in \$ per acre (\$30/ac) and Drying, Hauling, and Storage in per bus (\$1.00/bu)
4. Total Variable Costs	– sum lines 2-3
	Sum of all costs
5. Machinery Fixed Costs	
	Ownership costs per ac – prorated to over the typical life of the equipment (depreciation taxes, insurance, interest on investment)
6. Other Costs	
	General Overhead Costs
7. Total Costs	– sum lines 4, 5, & 6
8. Projected Net Returns	– line 1- line 7
	Returns to land/capital, management, and risk

Pre-harvest Variable Costs: Of the items, in an enterprise budget these are the ones farmers are most knowledgeable about the units applied (e.g., units of inputs like fertilizer, lime, herbicides, fuel, labor, and so on) and priced paid. Also consider that most inputs are purchased using a line-of-credit to finance the needed cash flow 6-8 months before crops are sold in the summer and/or fall. So make sure these pre-harvest costs carry an interest charged based on your line of credit.

Harvest Variable Costs: Harvest costs are a function of the fuel, repairs, maintenance, and labor related to harvesting the crop and transporting it to a market or back to the farmstead for drying and storage. Combining harvest costs and pre-harvest costs yields the total variable costs and per acre, per bushel, or per bale costs depending on what units you used to measure production. Comparing these costs to the estimated price per unit quickly gives you an estimated of the margin you'll have to cover all remaining costs. Remember to estimate drying costs (most elevators will have drying costs posted at harvest to use if you have not calculated you farm costs) and if you plan to store grain in your on-farm storage you'll need to charge monthly interest (line-of-credit interest rate) for each month that it sits in storage.

Machinery Fixed Costs: The nature of fixed costs make them the most important costs on a grain farm (in my opinion). Fixed costs can vary greatly based on the machinery and equipment selected, e.g., 12-row planter and a 250-HP tractor, or a 6-row planter and a 150 –HP tractor, and so on. Matching machinery and the implied field capacity to the size (acreage) of the farm is critical to achieving a profitable trade-off between speed and efficiency in the field and high fixed costs and the debt that often comes with machinery. Not correctly matching machinery complement (to much machinery) to the size of farm will aid in rapidly planting and harvesting yet the farm may have excessive debt and reduce ability to meet debt payments as they come due. Conversely, under-sized machinery (an unwillingness to invest in machinery) may result in lower debts and payments but missed planting and harvesting windows with reduces yields and quality. An excellent sources of information to guide you through this process is from William Edward at Iowa State titled “Farm Machinery Selection -- A3-28,” this publication along with many others on machinery can be found at www.extension.iastate.edu/agdm/cdmachinery.html.

Other costs: Overhead costs are an important catchall that accounts for costs that are not easily tied to an enterprise, for example, office expenses, phone and internet costs, software in the office and on field equipment, farm vehicles expenses for getting parts, delivering fuel and supplies during planting and harvest, accounting and legal fees, and so on. Some farm accounting software can help you determine or allocated overhead to each enterprise, without this support you can assume 8% of total cost (fixed and variable cost) will account for all unallocated costs. The sum of variable, fixed, other costs yields total costs for that enterprise and subtracting from gross receipts provides an estimate of net returns to land, risk, and management. What does returns to land, risk, and management mean? In short, what you'll have left over to provides returns to the owned land and other capital owned by the farm business; returns to management to cover the costs of managing the farm business (in lots of cases, a million-plus dollar business); and risk – the costs of or the additional returns that need to be set aside to cover the year-to-year yield and price risk. What's left over goes to meet family living. The funds that pay health, life, and disability insurance, housing, college education, retirement, food, state and federal taxes, entertainment, and so on. Another way to look at family living and how it relates

to an enterprise budget is to estimate your family living costs and divide by the total acres farmed. A North Dakota study reported that farm family living expense (a family of four) were \$57,000 in 2010. So if you farmed 1,200 acres you'd need around \$50 per acre over and above all these total cost to reach that level of family. So as you evaluated each enterprise and your choice of crops recognize the bottom line (returns to land/capital, management, and risk) is the best measurement of which enterprise will support the farm business and the dependent families.

Virginia Cooperative Extension as enterprise budget as guides to get you started on estimating which of you enterprise is most profitable at <http://pubs.ext.vt.edu/category/enterprise-budgets.html>.

Is Local Food Production Profitable?

Eric Eberly, Retired Extension Farm Business Management Agent

Virginia Cooperative Extension recently conducted a series of workshops on Profitable Greenhouse Production of Local Produce across Virginia. I had the task of discussing the economics of starting a successful greenhouse and/or vegetable business. A positive answer most likely requires a business plan and is highly dependent on marketing. All presentations spoke of the importance of knowing where you will market your produce before you plant your first seed. Marketing is a "Catch-22" for all new producers. It's hard to market a product before you have a product to market and understand the production process.

Virginia ranks 7th in the United States in greenhouse vegetable production¹ and 11th for all food crops grown under protection². Any structure that provides a protected culture of plant photosynthesis could be considered a form of a greenhouse. Whether it's a typical greenhouse, high tunnel, or hoop structure, higher yields and/or improved quality are required to pay for the added investment in the structures. The upside is that produce buyers and customers are more likely to view your business as a reliable and quality source of product if technology is used to reduce production and environmental risks by managing water, nutrients, entry of insects, temperature and relative humidity. The result is consistently higher yields of quality produce delivered on time.

Sustainable farms generate positive net returns (cover all fixed and variable costs) and contribute to support of the family owners. For any farm businesses to be profitable, it must be economically sustainable. One often overlooked expense is family labor and management contributed to the business. Family time spent working on a farm has an opportunity cost, and that labor contribution should be valued at the going market rate in your area of the state.

New ventures carry added risk and will require added profits to reward the risk taker. Profits are the return to all factors used in creating the products sold from the farm business, including the factor "risk." Therefore, new ventures, new crops and alternative ways of marketing (local foods) must also pay added returns to the farmers for the added risk of trying something new. For example, the word "on the street" is that the demand for local food exceeds the supply in this niche market, thus higher prices and potentially higher profits. Farmers considering this added market niche should consider the need for additional net returns to compensate for the added risk

before starting such a new venture. Consider, the recent article by Born and Purcell referring to the tendency of food activists and researchers to assume something about the local scale as inherently good. “The local is assumed to be desirable; it is preferred a priori to larger scales. What is desired varies and can include ecological sustainability, social justice, democracy, better nutrition, and food security, freshness, and quality. For example, the local trap assumes that local scale is inherently more socially just than a national-scale or global-scale food system.”⁴

Expanding your current greenhouse or vegetable business to include produce for the local market should be well thought out and planned on paper before committing to the investment. Writing a business plan is a good start and as change occurs, you should adapt and modify your business plan. Sometimes markets aren’t what they seemed or opportunities take you in a different direction. Take the time to consider the opportunity or threat and adjust your plan if it’s a workable financially.

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