International Trade: How It Affects Virginia Agriculture

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AGRICULTURAL COMPETITIVENESS

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EXECUTIVE SUMMARY

The potential impacts of international markets on Virginia agricultural producers have, in the past, received little attention. In part, this lack of attention is due to the broad commodity base of Virginia agriculture and its focus on commodities for domestic consumption. Thus, the influence of any single international trade factor on Virginia agriculture has been relatively small. In contrast, international trade receives a great deal of attention in the Midwestern states that annually export relatively large portions of their grain and soybean production. Nevertheless, for almost all Virginia commodities the importance of worldwide growth in agricultural export and import activities has steadily increased over the past 20 years. In general, international trade is just as important to Virginia producers as it is to producers in the rest of the United States.

This publication reports research that surveys the importance of international trade for agricultural commodities grown in Virginia. Its commodity focus is designed to complement the earlier Rural Economic Analysis Program (REAP) publication "The Economic Position of Virginia Agriculture: Mid-1990s" and to be an easy reference for trade questions relating to individual commodities.

The research draws on previous REAP publications, especially for peanuts and peanut policy, and brings together a collection of data from the United States Department of Agriculture's Foreign Agricultural Service and Economic Research Service (ERS) and from the United Nation's Food and Agriculture Organization. Discussions with Scott Sanford from ERS and faculty and students in the Department of Agricultural and Applied Economics at Virginia Teach have also been very helpful.

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INTRODUCTION

The influence of international trade on Virginia agriculture has historically received little attention. This lack of attention is primarily due to three factors. First, because of the broad commodity base of Virginia agriculture, the impact of world markets on any one commodity has a relatively small affect on Virginia agriculture as a whole. Second, the magnitude of exports and imports are minimal for a relatively large number of the commodities that are produced in Virginia. Finally, research institutions in the large grain and soybean producing states of the Midwest, whose agricultural sectors could be buffeted by world market shocks, have been relied on to publish information about world market conditions in grains and soybeans.

These facts are still largely true today, but they are only part of the story. Over the past 20 years, international sales have grown faster than domestic sales for many Virginia agricultural commodities, like broilers, turkeys, beef, and tobacco. Therefore, even though the broad commodity base of Virginia agriculture tends to lessen the overall impacts of changes in international markets on the state's agriculture as a whole, international markets can have large effects on individual producers in Virginia.

The cumulative effect of trade and the trends in sales growth in domestic and export markets for Virginia agricultural commodities form the basis for this report. The next section, "Role of World Markets in United States and Virginia Agriculture," describes the extent that international markets may directly or indirectly affect 25 agricultural commodities produced in Virginia. For commodities where Virginia production exceeds usage, such as wheat, direct export sales may be very important. However, even for commodities, such as corn, where state production does not meet usage[1] and little or no Virginia production is actually exported, international trade can still affect Virginia producers. In the case of corn, an increase in export demand for corn produced anywhere in the United States may lead to an increase in the price of corn in the United States and, therefore, in Virginia as well. As discussed in this section, the impact of international trade on Virginia agriculture is similar to that for the United States as a whole.

The "Trade Trends for Virginia's Top Agricultural Commodities" section reviews the trends over the past 20 years in the export and domestic markets for 12 of the most important agricultural commodities produced in Virginia. These trends allow one to identify whether exports and imports have become more or less important over time. For most commodities, sales in export markets have grown faster than sales in the domestic market, so that the importance of exports to production growth is larger than the export market share would suggest. For some commodities, exports have been the sole outlet for increased agricultural production. However, for all commodities, the dominant market outlet remains the domestic market.

In the "Value of Exports by Importing Country" section, the largest importing countries of United States agricultural commodities are identified. Most countries import many different agricultural commodities. A country's demand for each commodity depends on its preferences, the prices it faces, and its income. Knowledge of which countries are important sources of export demand can help in understanding how changes in exchange rates and projected changes in income in these countries may impact Virginia agriculture. In addition, analyzing the growth rates in agricultural exports by country is important because they can identify the countries that may become more important to United States and

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[1] Kenyon and Huffman have shown that the quantity of corn produced in Virginia is not sufficient to meet the needs of the Virginia livestock industry. Thus, Virginia is defined as a corn-deficit state.

Virginia agriculture in the future. For example, export sales of agricultural commodities important to Virginia increased rapidly for the Russian Federation (Russia), Hong Kong, and the Republic of Korea (South Korea) between 1993 and 1997. If this trend continues, trade with these countries will have stronger affects on Virginia producers in the future.

Finally, the "Current International Events Affecting Virginia Trade" section presents a brief discussion on the financial crises in Asia and Russia, and their projected effects on United States and Virginia agriculture. This section highlights how economic problems in other countries can affect United States and Virginia agriculture.

ROLE OF WORLD MARKETS IN UNITED STATES AND VIRGINIA AGRICULTURE

Data on commodity exports by state are deficient for agricultural products. The most frequently cited trade data use the state in which the final transportation to export originated. Therefore, much of the grain produced in the Midwest is attributed to Louisiana because the exports "originated" at export grain elevators in Louisiana. For commodities such as broilers or beef, this problem is less pronounced because exports could be shipped from the packing plant. However, if the exports are sold through an intermediate center, the state of the distribution center is then considered to be the state of origin. The Census of Manufactures avoids this problem for manufactured goods, such as broilers and beef, because it determines the value of exports by production plants. However, the most recently published Census is for 1992; therefore, its implications for 1999 are limited. Similarly, data on commodity imports by state are also not available.

An alternative measure of the potential importance of international trade is amount of "exposure" of Virginia agricultural producers to international markets. Exposure is defined as the value of exports divided by the value of domestic production (export exposure) or the value of imports divided by the value of domestic consumption (import exposure). As the share of exports or imports increases, the importance of international trade and the level of exposure to fluctuations in international markets also increase. Thus, the exposure of Virginia agricultural producers to international markets may be from the demand for exports or the supply of imports. For example, a large share of United States wheat production is exported while a very small amount of wheat consumption in the United States is supplied by imports. Thus, while wheat producers in the United States and Virginia face relatively little import competition, they still have a large exposure to changes in the demand for wheat in international markets. Conversely, a very small amount of United States sheep and lamb production is exported while a relatively large amount of the United States consumption of sheep and lamb is from imports. Thus, the United States and Virginia sheep and lamb producers have a relatively large exposure from competing imports of sheep and lamb products.

Estimated exposure is not an estimate of the value of exports from Virginia. Instead, it indicates the extent to which the demand for United States agricultural commodities abroad or the availability of competing imports will affect the prices of the commodities in the United States and, therefore, prices in Virginia. As the exposure to international markets increases, the effects of international trade on United States and Virginia agricultural commodity prices increase.

To determine the level of exposure of Virginia agriculture to international trade requires information on export, import, and sales shares for each commodity (Table 1). Market and product complexities required that special consideration be given in computing export and import shares for milk, greenhouse/

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nursery, tomatoes, vegetables (other than potatoes), and tobacco. All dairy products were converted to their fluid milk equivalents. Export data for the greenhouse/nursery industry and most vegetables (except tomatoes and potatoes) are not available at the commodity level. Because fresh tomato imports largely reflect winter and early spring imports from Mexico, which do not compete directly with Virginia summer productions, tomato import share is not included in the calculation of overall import exposure for Virginia. The tobacco export share reflects direct tobacco exports and domestic tobacco contained in United States cigarette exports (see Appendix).

Table 1. Share of Commodity Sales, Export Share, and Import Share for Virginia's Major Commodities, 1995/96

Commodity	Sales Share[1]		Export Share[2]	Import Share[3]
	Virginia	United States	United States	
	------------------------------------percent----------------------------			
All Livestock	61.9	46.8		
Broilers	19.9	6.3	16.9	0.0
Milk	12.4	10.7	1.3	2.4
Cattle and Calves	9.0	18.3	7.2	7.9
Turkeys	8.7	1.5	8.1	0.0
Hogs	3.5	5.4	5.6	3.7
Eggs	3.2	2.1	4.0	0.1
Sheep & Lambs	0.2	0.3	2.5	22.0
All Crops	38.1	53.2		
Tobacco	8.0	1.4	49.4[4]	35.2
Greenhouse/nursery	6.6	5.6	n.a.[5]	n.a.
Corn	4.1	9.4	19.6	0.1
Soybeans	4.1	7.1	37.6	1.3
Wheat	3.0	4.7	43.6	7.0
Peanuts	2.5	0.5	19.5	4.1
Cotton, Lint & Seed	2.5	4.1	37.5	3.7
Apples	1.6	0.9	11.7	3.8
Hay	1.3	1.9	0.0	0.0
Tomatoes, Fresh	1.1	0.8	8.3	33.0
Potatoes	0.9	1.4	1.3	1.5
Barley	0.5	0.4	8.8	8.6
Cucumbers, Fresh	0.3	0.2	n.a.	n.a.
Peaches, Freestone	0.2	0.2	4.7	0.0
Snap Beans, Fresh	0.2	0.2	n.a.	n.a.
Cabbage, Fresh	0.1	0.2	n.a.	n.a.
Bell Peppers, Fresh	0.1	0.2	n.a.	n.a.
Corn, Sweet	0.1	0.3	n.a.	n.a.

[1] Sales of each commodity divided by total dollars of agricultural sales. Note that sales shares for all United States commodities do not add to 100 percent. Commodities such as rice, sugar beets, and sugar cane, which are important to overall United States agriculture, are not grown in Virginia.

[2] Value of exports divided by the value of production.

[3] Value of imports divided by the value of consumption.

[4] Includes cigarette exports.

[5] Not available.

Source: United States data: USDA (1997c) and USDA Agricultural Statistics (1996); Virginia data: VASS (1997).

To determine if the overall level of export and import exposure for Virginia agriculture is relatively high or low, average aggregate exposure estimates for Virginia are compared with those for United States agriculture. The average export and import exposures (Table 2) are calculated using the sales share weighted average of exports and imports.[2] Thus, international markets are more important to agricultural commodities with both relatively high sales shares and relatively high export or import shares. Using a weighted average incorporates the differences in relative sales shares between the United States and Virginia when estimating the average export and import exposure.

On average, the Virginia livestock sector has a slightly higher export exposure than the United States livestock sector (Table 2). This higher level of export exposure stems from the relatively large sales and export share for broilers in Virginia. Conversely, the Virginia livestock sector enjoys a lower import exposure than the United States livestock sector. Broilers, turkeys, and eggs, which are relatively more important commodities in Virginia than the United States as a whole, all have small import shares.

Table 2 Average Export and Import Exposure for Virginia's Agricultural Commodities, 1996

	Export exposure	Import exposure
	-------------Percent[1]---------------	
Livestock		
Virginia	9.1	2.1
United States	6.8	4.4
Crops		
Virginia	31.3	11.7
United States	27.8	4.4
Total		
Virginia	16.8	5.3
United States	15.7	4.4

[1] Entries are dollar value weighted averages of the percent of domestic production exported and the percent of domestic consumption imported.
Source: Calculated from Table 1, United States data: USDA (1997c), and USDA Agricultural Statistics (1996).

The average export exposure for the crop sector is slightly higher for Virginia than the United States due to a large export share of tobacco. The average export exposure for the crop sector, for both Virginia and the United States, is about three to four times as large as the average export exposure for the livestock sector. Average import exposure for the crop sector is much higher for Virginia, due to relatively large tobacco imports. Without tobacco, the average crop import exposure would drop to 2.8 percent for Virginia and 3.0 percent for the United States.

The "Total" rows in Table 2 provide a comparison of the overall level of export and import exposure for the agricultural sectors in the United States and Virginia. Both the average export and import exposure is slightly higher for Virginia agriculture compared to United States agriculture. However, the average export and import exposures for the non-tobacco industries are slightly lower for Virginia compared to the United States. Since the differences in average export and import exposure between Virginia and the

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[2] For example, the average export exposure for the Virginia livestock sector is calculated by multiplying the Virginia livestock sales shares in Table 1 by the United States export shares, summing across all livestock categories, and dividing by the sum of the livestock sales share for Virginia:

$$\frac{(19.9*16.9)+(12.4*1.37) +...+(0.2*2.5)}{19.9 + 12.4 +...+0.2}$$

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United States are similar, the international markets are equally important for Virginia producers and producers in the rest of the United States.

TRADE TRENDS FOR VIRGINIA'S TOP AGRICULTURAL COMMODITIES

As shown in Table 3, sales of livestock products in international markets have increased faster than sales in the domestic market. Broilers, beef, and turkey exports grew more than 10 percent per year between 1975 and 1997. For broilers and turkeys, the growth in export sales even exceeded the relatively strong growth in domestic sales. In the case of beef, which experienced declining sales in the domestic market, exports were the only source of sales growth over the period. However, even with the strong growth in export sales, over 80 percent of all livestock products are sold in domestic markets. The large annual percentage changes in commodities such as beef are primarily because exports in 1975, the base year, were quite small.

Table 3 United States Marketing Trends for Selected Virginia Agricultural Commodities, 1975 to 1997

| Commodity | Average yearly sales growth[1] | | Share of 1996 domestic production | |
	Domestic market	Export Market	Domestic market	Export Market
	-----------------------------------percent-----------------------------------			
Livestock				
Broilers	4.8	16.2	83.1	16.9
Beef	-0.2	16.3	98.7	1.3
Milk	1.3	3.0	92.8	7.2
Turkeys	4.8	10.6	91.9	8.1
Pork	1.5	7.5	94.4	5.6
Eggs	0.8	9.4	96.0	4.0
Crops				
Tobacco	-3.5	-1.0	63.6	36.4
Cigarettes	-0.8	7.7	69.0	31.0
Corn	2.8	0.9	80.4	19.6
Soybeans	2.4	2.3	62.4	37.6
Wheat	2.1	-0.6	56.4	43.6
Peanuts	-0.8	2.4	80.5	19.5

[1] All commodities, 1975 to 1997 (est.) except Tobacco, 1975 to 1995, and Corn, 1975 to 1996.
Sources: USDA (1997a) and USDA (1998a).

The trends in crop export sales listed in Table 3 are mixed. Export sales of peanuts and cigarettes grew faster than domestic sales. Corn and wheat domestic sales grew faster than export sales. In the case of wheat, export sales actually declined slightly over the period. However, corn and wheat export sales experienced considerable variation, reflecting United States supply variations and exchange rate fluctuations over the period. Soybean sales to the domestic and export markets grew at the same pace. For tobacco, both the export and the domestic market declined, on average. However, the export sales of cigarettes increased while cigarette sales in the domestic market declined.

These trends suggest that international trade in livestock products is a fast-growing, emerging market while trade in crops is a slowly growing or stagnant, mature market. This characterization is consistent with the increasing incomes of most of the major trading partners of the United States. As the per capita incomes of trading partners increase, their food demands tend to shift from less expensive

staples of grains and soybeans to more expensive meat products. If this tendency continues, the Virginia livestock sector, especially the poultry industry, should be helped by increasing export demand for United States products. Alternatively, if grains and soybeans are mature markets, Virginia producers should not look for large increases in United States export sales as a way to boost United States and Virginia prices. *Product differentiation, tailoring grains or soybeans to fit a specific market, may better serve long-term profitability for grain and soybean producers than export markets.*

Tobacco, broilers, and peanuts have been chosen for a more detailed discussion because tobacco and broilers have the highest trade exposure of all Virginia commodities in the crop and livestock sectors and because the trends in peanut trade and domestic use have important implications for future peanut policy.

Tobacco: The increasing reliance on cigarette export markets to offset declining domestic use has implications for United States tobacco policy. The support price (an average price of flue-cured and burley tobacco placed under loan) has historically been about 22 percent greater than the price of imports into the United States (Figure 1). Foreign tobacco is primarily a substitute for lower quality United States tobacco. If the support price is set too high compared to foreign tobacco prices, then lower quality United States tobacco leaf will not be competitive in world markets. As a consequence, the sole outlet for lower quality United States tobacco will be in cigarettes sold in the domestic market. However, this outlet is limited by declining domestic cigarette consumption and the falling level of protection against imported tobacco. In the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) negotiations, the United States agreed to replace the 25 percent maximum foreign tobacco content of domestic cigarettes with a tariff rate quota (TRQ) system. The TRQ allows a quota of foreign tobacco to enter duty free. Imports above the quota face a tariff. The initial quota is set at the previous 25 percent maximum foreign content, but it will increase over time. The initial over-quota tariff is set prohibitively high (350 percent), but future negotiations will likely reduce the magnitude of this tariff. In addition, the over-quota tariff payments can be, under certain conditions, paid back to United States manufacturers if finished products are exported. Thus, future reductions in the TQR may lead to a decrease in the tobacco support price because of the no-net-cost provision in the existing tobacco program.

Figure 1. United States Tobacco Loan Rate, Export and Import Prices, 1975 to 1995

Source: Estimated using data from USDA (1997b) and USDA, Agricultural Statistics.
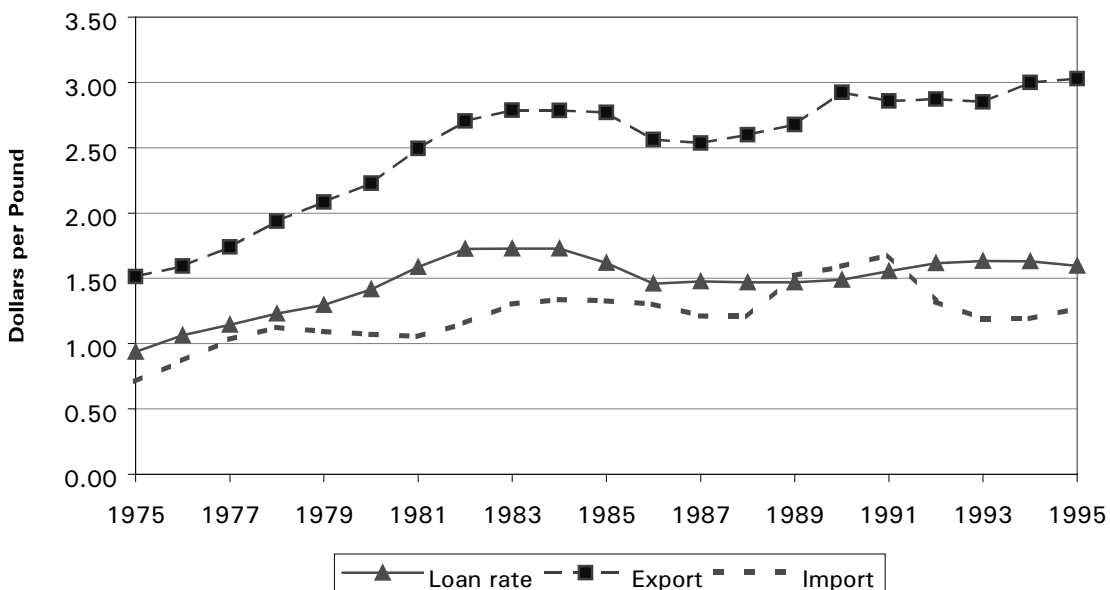
Broilers: Broiler exports have grown significantly over the last 20 years. Since the mid-1970's, exports have risen from only about 2 percent of total United States broiler production to nearly 17 percent of United States broiler production (Figure 2). Most of this increase occurred from 1989 to 1997, when broiler exports grew at an annual average rate of 22 percent a year.

Much of this increased trade is with countries of the former Soviet Union and is comprised largely of dark meat, which complements the United States market with its strong demand for white meat. Complementary trade may benefit both producers and consumers. Producers benefit because the overseas demand for dark meat bids up the price for dark meat in the United States, increasing the average price for broilers. If the increase in price induces producers to increase broiler production, the price of white meat should fall and American consumers would benefit from the availability of more white meat at lower prices.

Figure 2. United States Broiler Export Share in Production, 1975 to 1997
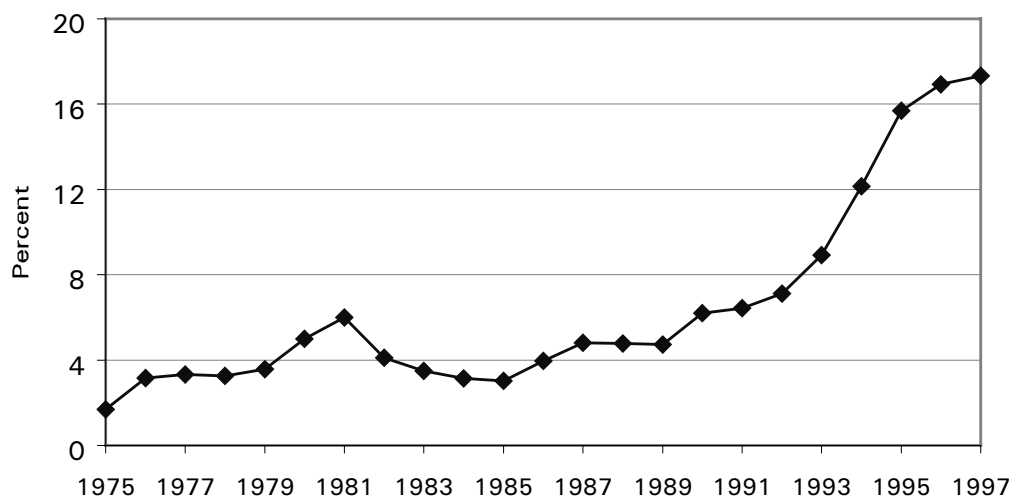
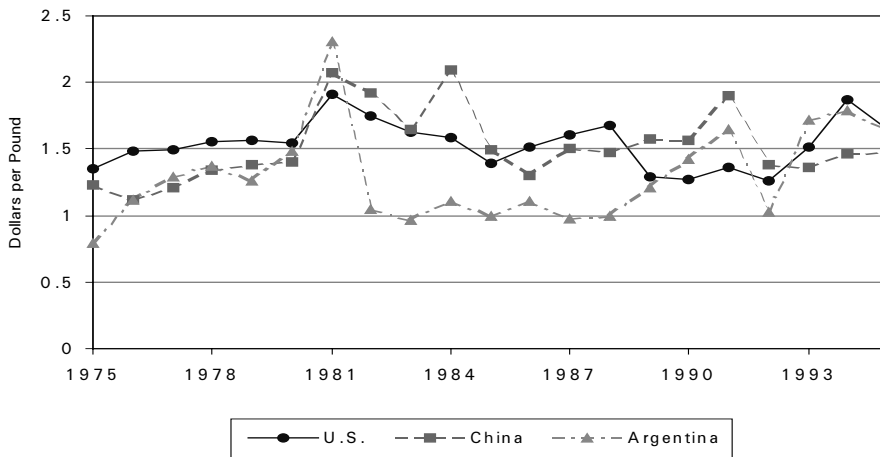Source: Estimated using data from USDA (1997b).

Peanuts: From 1975 to 1997, domestic use of peanuts declined while exports increased. In addition, the no-net-cost provision of the current United States peanut program leaves little room for expanded production to be absorbed in the form of increased stocks. Thus, as long as domestic consumption remains stagnant, increasing exports will be the only way for United States peanut growers to expand production.

In the short run, protection from foreign competition ensures that holders of peanut quotas benefit from domestic prices much higher than world market prices and that quota peanuts will supply nearly all the domestic demand. For example, imports accounted for only 4 percent of domestic consumption in 1996. However, in the medium to long run, the share of United States peanuts in domestic consumption and the land rent paid to owners of peanut quota may be eroded. The United States is expected to increase access of other producing countries to its domestic market under the GATT and the North American Free Trade Agreement (NAFTA) commitments.[3] In addition, the current over-quota tariff will cap domestic prices at the world price plus the prevailing tariff.

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[3] Similar to tobacco, peanut imports are restricted through the use of tariff rate quotas. Currently, the level of duty free quota is very small relative to total United States production, and the over-quota tariff is prohibitively high. However, subsequent trade negotiations may increase the level of the duty free quota, reduce the tariff rate, or both. In addition, in the later years of the NAFTA, all imports of peanuts from Mexico may enter duty free. See Mutangadura, *et al.* for a more detailed discussion of peanut policy.

If domestic demand continues to decline, the only alternative market for increases in United States production is the export market where United States exporters face strong price competition. For example, China and Argentina are two of the United States biggest competitors for peanuts in world markets. From 1975 to 1995, the United States price of peanuts loaded on the ship for export (an f.o.b. price) was fairly similar to f.o.b. prices for peanuts from China and Argentina (Figure 3). The exception was a period in the mid-1980's when f.o.b. peanut prices in Argentina were significantly lower than either the United States or China. Thus, United States peanuts appear to be substitutes for peanuts from other countries.

Figure 3. Export F.O.B. Peanut Prices for the United States, China, and Argentina, 1975 to 1995

Source: Estimated using data from United Nations, FAO, 1997.

VALUE OF EXPORTS BY IMPORTING COUNTRY

To identify the major buyers of United States agricultural exports, the value of those exports to specific importing countries was calculated for 1993 to 1997. Unfortunately, data are only available for broadly defined commodity groups. The groups of coarse grains, dairy, eggs, poultry, red meat, peanuts, soybeans, tobacco, and wheat correspond as closely as possible to the 12 commodities identified in Table 1 as having the largest sales share in Virginia. Poultry is defined to include broilers and turkeys. Red meat includes beef, pork, lamb, and mutton.

The major trading partners for United States and Virginia agriculture are quite similar. Japan, Canada, Mexico, Taiwan, Republic of Korea (South Korea), the Netherlands, Hong Kong, the People's Republic of China (China), Germany, the Russian Federation (Russia), and Spain are important importers for both the United States and for the 12 top commodities in Virginia. This ranking clearly shows the importance of the Pacific Rim countries to United States and Virginia agriculture. The only differences among the top 12 importers for the United States and Virginia are that the United Kingdom ranked tenth for the United States, but only ranked twenty-sixth for Virginia. It imports only small amounts of poultry, coarse grains, and wheat from the United States, all important commodities in Virginia. Egypt, on the other hand, which purchases relatively large amounts of wheat and coarse grains from the United States, ranked eighth for Virginia but only thirteenth for the United States. For both the United States and Virginia, the top 12 trading partners account for nearly two-thirds of the agricultural exports.

Table 4. Top Importing Countries of United States Agricultural Commodities for 1997

United States Exports Important to Virginia[1]		Total United States Exports	
Importer	Export share	Importer	Export share
Japan	24.9	Japan	18.4
Mexico	9.5	Canada	11.9
Taiwan	6.2	Mexico	9.1
Korea, Republic of	5.6	Korea, Republic of	5.0
Netherlands	3.9	Taiwan	4.6
Canada	3.8	Netherlands	3.4
Russian Federation	3.5	Hong Kong	3.0
Egypt	3.0	China, People's Republic of	2.8
Spain	2.5	Germany	2.3
Hong Kong	2.4	United Kingdom	2.3
Germany	2.1	Russian Federation	2.1
China, People's Republic of	2.0	Spain	2.0
Top Twelve	**69.4**	**Top Twelve**	**66.7**

[1] Includes coarse grain, dairy, eggs, peanuts, poultry, red meat, soybeans, tobacco, and wheat exports.
Source: Estimated using data from UDSA (1998a).

Some interesting differences exist in the export shares among the top 12 importers of United States agricultural products. While Japan is clearly the largest importer, it is much more important to Virginia agriculture, accounting for nearly one-quarter of the United States exports of all agricultural commodities that are important to Virginia. Japan potentially has a much larger economic impact on Virginia agriculture, compared to the rest of the United States, because it ranked in the top five importers of coarse grains (first), red meats (first), soybeans (first), wheat (first), eggs (second), tobacco (second), dairy products (third), and poultry (fifth) in 1997. Conversely, Canada is the second largest importer of all United States agricultural exports but imports fewer of the agricultural commodities that are important to Virginia. Finally, Russia is relatively more important to Virginia agriculture because of its large imports of United States poultry and red meats.

Identifying the major trading partners for United States agriculture provides information on which countries are currently having the greatest impact on United States and Virginia agriculture. By also considering the growth rates in agricultural exports, the countries that may become more important to United States and Virginia agriculture in the future can be identified. Table 5 lists the average annual growth rates of United States exports over the period 1993 to 1997.[4] Total United States exports of all agricultural products increased by 6.7 percent during this period. However, a large variation in the export growth rates exists among the 12 largest importers. Total United States exports to Mexico, South Korea, Hong Kong, China, the United Kingdom, and Spain grew faster than the overall average, while exports to Japan, Canada, Taiwan, the Netherlands, Germany, and Russia grew at a slower pace or declined.

Focusing only on those United States agricultural commodities important to Virginia yields a slightly different picture. The exports to Russia of agricultural commodities important to Virginia increased by 67.2 percent compared to the 0.3 percent decline in total United States agricultural exports to Russia. This difference reflects the large increases in eggs, poultry, and red meat exports to Russia between 1993 and 1997. Thus, while the importance of Russia to United States agriculture as a whole has not

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[4] Average annual growth rates were computed by dividing the value of exports in 1997 by the value of exports in 1993, multiplying by 100 and dividing by 5. For example, Japan imported a total value of $10,523,237,000 in U.S. agricultural products in 1997 and $8,822,407,000 in 1993. Thus, its average annual growth rate is computed as (10,523,237/8,822,407)*100/5 = 3.9 percent.

changed in value terms (and likely has declined in terms of export shares), Russia has become much more important to the market for United States commodities that are important to Virginia agriculture.

Table 5. Average Annual Growth in Value of Imports for Top Importers of United States Agricultural Commodities, 1993 to 1997

United States Exports Important to Virginia[1]		Total United States Exports	
Importer	% Growth	Importer	% Growth
Japan	3.5	Japan	3.9
Mexico	9.8	Canada	5.5
Taiwan	3.2	Mexico	8.7
Korea, Republic of	20.8	Korea, Republic of	9.5
Netherlands	4.1	Taiwan	5.5
Canada	5.2	Netherlands	2.9
Russian Federation	67.2	Hong Kong	18.7
Egypt	14.1	China, People's Republic of	65.6
Spain	11.4	Germany	4.5
Hong Kong	25.9	United Kingdom	7.9
Germany	8.5	Russian Federation	-0.3
China, People's Republic of	13.5	Spain	9.3
Top Twelve	**7.9**	**Top Twelve**	**6.6**
		All Exports	*6.7*

[1] Includes coarse grain, dairy, eggs, peanuts, poultry, red meat, soybeans, tobacco, and wheat exports.
Source: Estimated using data from USDA (1998a).

Total agricultural exports to China increased dramatically (65.6 percent), while exports of those United States commodities important to Virginia increased at a much slower rate (13.5 percent). While relatively large percentage increases in the exports of tobacco, dairy products, soybeans, red meats, and to a lesser extent, poultry occurred, China does not usually import large quantities of these commodities with the exception of soybeans. Because wheat exports to China declined by 16 percent during this period, the overall export growth rate for those United States commodities important to Virginia increased at a slower rate than for total agricultural exports.

Finally, exports to South Korea, Hong Kong, and Germany of those United States commodities important to Virginia grew faster than total agricultural exports to those countries. This increased export growth can be attributed to large percentage increases in the sales of coarse grains, dairy products, eggs, red meats, and tobacco to South Korea; poultry products and red meats for Hong Kong; and tobacco, soybeans, and eggs for Germany.

CURRENT INTERNATIONAL EVENTS AFFECTING VIRGINIA TRADE

Two recent international events have garnered a great deal of media attention: the Asian financial crisis and the devaluation of the Russian ruble. Because Russia and the countries along the Pacific Rim are major buyers of the agricultural commodities important to Virginia, these events may have significant impacts on Virginia. The devaluation of the Russian ruble will have significant impacts on the exports of poultry products, at least in the short term. The United States poultry industry is heavily dependent on the Russian market. The Foreign Agricultural Service estimates that sales to Russia will account for 40 percent of all United States poultry exports in 1998 (USDA, 1998b). However, because the devaluation of the ruble relative to the United States dollar increases the price of United States poultry exports to

Russia, poultry exports to Russia in the fall of 1998 are expected to be significantly lower than for the same period in 1997. The longer term impact may be less severe because imported poultry accounts for 70 percent of all poultry meat consumed in Russia, and the imported leg quarters are the least expensive meats available in Russia. However, if the ruble devaluation leads to a significant increase in inflation in Russia and lower real disposable income, the overall demand for poultry products may decline in the longer term.

The Asian financial crisis has interrupted a period of strong economic growth in many East Asian countries. Before the financial crisis, increasing real per capita incomes led to increases in the demand for various meat products, which, in turn, spurred an increase in both red meat and poultry imports as well as imports of feedgrains for expanding domestic livestock industries in these countries. In several countries, the adjustments resulting from the financial crisis have lead to the devaluation of currencies relative to the United States dollar. Even though the devaluation increases the price of feedgrain and meat exports from the United States, the overall level of exports has remained constant (USDA, 1998c) because of two offsetting effects. Higher relative prices of United States meat imports would, all else being equal, cause foreign consumers to switch to their own domestically produced meat products. However, the livestock industries in the Asian countries also must pay higher prices for the imported feedgrains. Higher grain prices increase the cost and, therefore, the price of domestic meat products in the Asian countries, which would cause foreign consumers to switch to imported meat. Of course, significant variations in the levels of United States meat and feedgrain exports exist by country, but the overall effect is relatively steady levels of exports. United States and Virginia agriculture, instead of enjoying the direct and indirect benefits of rapidly growing export markets in Asia for feedgrains and meat products, now face the prospect of stagnant Asian export markets for some time to come.

CONCLUSIONS

International trade affects Virginia agriculture in much the same way that it affects United States agriculture. Trade in no one commodity dominates either sector, but most important United States and Virginia-produced commodities have a significant exposure to international markets through exports or through imports. Over the past 20 years, United States exposure has increased for livestock commodities and, at least, held steady for the major crops grown in Virginia. The export exposure for livestock commodities is especially promising because exports of livestock commodities, especially poultry, have grown fast, and the poultry sector is a large part of Virginia agriculture. In addition, a large share of livestock exports is to middle- and high-income countries. Increasing incomes seem to be steering the demand by middle-income countries for United States agricultural commodities away from grains and soybeans, which are less important for Virginia, and towards livestock and poultry commodities, which are more important in Virginia.

In the long run, the direct and indirect impact of trade on Virginia agriculture is expected to grow in the presence of GATT and NAFTA, but the impact is likely to be variable and somewhat unpredictable. In a world market that is increasingly closely intertwined, domestic policies in any country and changing exchange rates will create volatility and uncertainty. As developing countries grow and create an ability to buy, they may buy United States commodities of importance to Virginia agriculture, which can lead to growth and opportunity.

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APPENDIX: COMPUTATION OF EXPORT SHARES FOR TOBACCO

The estimated export share for tobacco, 49.4 percent, is a combination of the percentage of the total United States tobacco production that was exported (36.4 percent) and an estimate of the domestically produced tobacco contained in United States cigarette exports. (Domestic content of cigarette must be estimated because United States cigarette manufacturers do not publish it.) Until recently, the maximum amount of foreign tobacco in United States cigarettes produced for domestic consumption was limited to 25 percent. Therefore, at least 75 percent of the tobacco used was from domestic production. The domestic market consumes 69 percent of all United States cigarette production, which contains at least 75 percent domestic tobacco. Thus, at least 52 percent of the total use of United States tobacco was used in cigarettes for the domestic market. Because approximately 65 percent of all domestically produced tobacco is purchased by united States tobacco companies, the remaining 13 percent (65 - 52 = 13) is the amount of domestic tobacco contained in exported cigarettes. Adding these two components together yields the final estimated export share for tobacco.