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Estimation of Demand for Wheat by Classes for the United States and the European Union

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ABSTRACT

This study estimates demand for wheat differentiated by classes using a dynamic AIDS model for the United States and the European Union (EU). The results suggest that imported wheat is more price responsive than domestic wheat in the U.S. market but not in the EU market. The high price responsiveness of Canadian wheat in the U.S. market may suggest that the Canadian policy that reduces prices in the U.S. market or U.S. export subsidies that raise prices of U.S. wheat could be expected to give rise to substantial substitution of Canadian for U.S. wheat.

ESTIMATION OF DEMAND FOR WHEAT BY CLASSES FOR THE UNITED STATES AND THE EUROPEAN UNION

The world wheat market is one of the most widely studied commodity markets (McCalla 1986; Alaouze, Watson, and Sturgess 1978; Wilson, Koo, and Carter 1990; and many others). These studies have shown that the world market for wheat is extremely complex and includes imperfectly competitive elements stemming from market structure (large grain trading companies and state importers), the heterogeneity of the product and its many end uses, and the extensive intervention of governments in both exporting and importing countries. In North America and Europe, wheat is a very important commodity both because of its central place in food consumption patterns in these regions and because of its importance as a source of farm income. Given these diverse considerations, it is not surprising that wheat has been at the heart of trade disputes (the Canada-U.S. dispute over durum wheat) and policy conflicts (the U.S. and EU export subsidy competition).

The objective of this study is to estimate demand functions for wheat differentiated both by country of origin and end uses for the United States and the EU. These estimates provide important information for understanding substitutability among different types and classes of wheat, including domestic wheat. They are particularly informative for these countries, where multiple classes of domestic and imported wheat are consumed. For example, U.S. wheat millers purchase various classes of domestic wheat in addition to two major types imported from Canada. Similarly, in the EU domestically produced common and durum wheat, as well as imports of various types of wheat from the United States and Canada, are consumed. Substitution possibilities among or between domestic and imported wheat are extremely important in understanding wheat import demand and the potential impact of particular trade policies. For example, an understanding of the substitutability between U.S. and Canadian

durum in the U.S. domestic market is critical for analyzing wheat-related conflicts between these two countries.

Differentiation of wheat both by country of origin and by end uses has been analyzed by many researchers including Laurel (1991); and Wilson (1989). Laure found that the assumption of one form of product differentiation or the other would be appropriate if countries specialize in one product type and the given product type is exported by only one country. In the case of wheat, this is not applicable because most countries trade more than one class of wheat. Sumner, Alston, and Gray (1994) argued that differentiation of wheat is clearly evident from the fact that particular countries both export and import wheat. According to Sumner, Alston, and Gray, if the goods are perfect substitutes, exports and imports would not coexist except in marginal border trade where one region of a country imports and another region of the same country exports.

Most previous studies have assumed perfect substitutability across classes and origins. Some studies allow imperfect substitutability of wheat of different origins. However, most of these studies assume perfect substitutability among wheat classes originating from the same source country. For this study, wheat is also differentiated into three categories according to end uses. The three primary industrial uses of wheat include pasta made from durum wheat; bread from hard spring wheats and, to a lesser extent, hard red winter wheats, which have the ideal physical configuration; and other milling products such as pastries and crackers, which can be made from hard red winter, soft, and white wheat. Within each category, wheat from one national region is differentiated from another region. For example, Canadian durum is an imperfect substitute for U.S. durum or durum from any other origin. One reason that has been

suggested for differentiating wheat by country of origin is that countries have different policies and these policies make the sales conditions different from one country to another. Substitutability between durum and spring or other wheat is not allowed in the demand estimation because there are limited technical substitution possibilities between durum and spring or other wheat (Alston, Gray, and Sumner 1994).

Theoretical Considerations in Modeling Demand Functions

A traditional approach to identify price response in international trade is to employ the elasticity of substitution model. In this approach, logarithms of relative import ratios are regressed on logarithms of income and relative prices. The functional form used in the specification has been criticized because it is not derivable from an underlying model of optimization behavior. Another specification, the Armington model, also has been widely used in modeling trade flows of differentiated commodities. The Armington approach distinguishes imports by country of origin and uses a two-step procedure for the import decision. The model has been criticized because of its restrictive assumption that the elasticity of substitution is constant and equal across pairs of commodities (Alston, et. al. 1990). According to Grennes, Johnson, and Thursby (1977) a naive constant share model has yielded superior predictions relative to the Armington model for heterogeneous commodities like wheat.

The Almost Ideal Demand System (AIDS) developed by Deaton and Muellbauer (1980), an alternative specification derived from demand theory, has also been widely used in demand analysis. The model has been used to analyze import behavior with respect to aggregated wheat by Hennings and Martin (1987). This study assumed product differentiation among classes but aggregated wheat of similar classes with different origins (i.e., U.S. durum was aggregated with

Canadian durum, U.S. hard red spring with Canadian western red spring wheat).

More recently, Wilson (1994) used translog demand functions derived from dual relationships to estimate demand for wheat classes by Pacific Rim countries. The translog demand function used by Wilson is similar to the AIDS specification, except for the inclusion of a second-order logarithmic term for the expenditure variable. Using this approach, Wilson concluded that it may be inappropriate to allow differentiation by origin but found perfect substitutability across classes exported from a particularly country.

The different specifications used in previous studies to represent wheat demand are static in nature. Static demand specifications are unlikely to capture the behavior of consuming regions because it take time to adjust fully to any changes in market conditions, including price changes. Several factors account for this slow adjustment on the part of consuming regions. Habit formation can generate delayed responses (Pollack and Wales 1969). This is particularly true for wheat because an importer's preference for a specific class of wheat depends on its end uses. This fact tends to freeze demand patterns in the short run because consumption of final goods and technological capabilities evolve fairly slowly so that there will be a tendency for limited responsiveness to short-run price variations. However, in a longer time frame, changes in final consumer demand and technological innovation could lead to shifts in importer preferences as millers discover ways to blend or enhance cheaper wheats to obtain the desired characteristics at lower cost. Millers in the EU have been able to concentrate protein and other desirable attributes in their relatively low-quality wheat, reducing the need to import North American wheat for blending (Leuck 1990).

Another important reason for a slow response to price changes might be long-term trade agreements (LTA) between an importer and an exporter. LTAs typically involve shipments

periods of two or more seasons and often provide an upper and lower bound on purchases (Harwood and Bailey 1990). Thus, LTAs can decrease an importer's flexibility to respond immediately to market conditions. LTAs are widely used in world wheat trade (Harwood and Bailey). In the 1980s, approximately 25 to 30 percent of world wheat was traded through LTAs (OECD 1987).

Model Specification

Based on the preceding discussion, a model that includes dynamic responses over more than one time period seems called for to represent the behavior of firms and consumers in the United States and the EU. This study uses a general dynamic demand framework extended to the AIDS system following the procedure of Wickens and Breusch (1988). A similar dynamic specification has been used by Kesavan, et al. (1993) to evaluate the dynamics and long-run structure of U.S. meat demand. The AIDS model seems to be the most robust choice of the many flexible demand systems available for specification in a dynamic setting (Anderson and Blundell 1983).

The AIDS model is derived by specifying an expenditure function representing a PIGLOG[1] class of preferences. This PIGLOG class of preference leads to the following cost function:

$$\log c\,(u, p) = (1-u) \log a(p) + u \log b\,(p),$$

where the positive linearly homogeneous functions a (p) and b(p) may be regarded as the costs of subsistence and bliss. The functional forms for a (p) and b (p) are chosen such that the first

[1]PIGLOG is a special form of the price-independent, generalized (PIGL) class of preferences.

and second derivatives of the cost function can be set equal to those of an arbitrary cost function, thus satisfying the necessary condition for flexibility of functional form.

The demand function is derived from the cost function using Shepherd's lemma because of the fundamental property of the cost function that its price derivatives are the quantity demanded. Multiplying both sides of the first derivatives of the cost function by p_i /c(u, p), the left-hand side may be expressed as a budget share and the right-hand side may be expressed as a function of prices and utility. The cost function is then solved for u and the resulting term is substituted for u in the budget share equation. Thus, we have budget shares as a function of p

$$W_{it} = \alpha_i + \sum_{i-1}^{n} \gamma_{ij} \ln(P_{jt}) + \beta_i \ln(M_t / P_t),$$

and M (total expenditures:

where $W_{i,t}$ is the budget share of the ith commodity, P_j is the price of the jth commodity, and M is the total budget outlay. P is the price index defined by

$$\mathrm{Ln}(P) = \alpha_0 + \sum_j \alpha_i \mathrm{Ln}(p_j) + 1/2 \sum_j \gamma_{ij} \mathrm{Ln}(p_i) \mathrm{Ln}(p_j).$$

The original price index (equation 2) is usually replaced by a Stone's price index because of its nonlinearity. Use of the Stone's price index allows for a linear estimation of the system. When the Stone price index is used in equation 1, the system is referred to as linear approximation of the Almost Ideal Demand System (LA/AIDS) (Blanciforti, et. al. 1986). In an application, Johnson (1983) suggested that use of Stone's price index is a reasonably accurate approximation of Deaton and Muellbauer's original price index. Stone's price index is defined as the weighted average of prices by budget share and is defined as

$$\text{Log}(P) = \sum_{j=1}^{n} w_j \log(p_j).$$

Following equation 1, the general dynamic specification of the AIDS model in a distributed lag

$$W_{it} = \sum_{k=1}^{n} \lambda_{ik} X_{i,t-k} + \sum_{k=1}^{n} \delta_{ik} X_{i,t-k} + u_t ,$$

form is given by

where X is a vector of prices and expenditures used in the AIDS model. $\delta_i = \alpha_i, \gamma_{i1}, \gamma_{i2}, ..., \beta_i$, the matrix of parameters for the ith equation in the AIDS model (equation 1).

This reduced form equation is adequate to obtain the estimates of λ_k and δ_k œ k. Further

$$\Theta = \frac{\sum_{k=1}^{n} \delta_{ik}}{1 - \sum_{k=0}^{n} \lambda_{ik}} .$$

computations are required to derive the long-run parameter matrix Θ using the formula

The general distributed lag AIDS model (equation 4) is transformed following a procedure suggested by Wickens and Breusch (1988) so that the long-run parameters can be estimated directly. Subtracting $\sum_{k=1}^{n} \alpha_k w_t$ from both sides of the distributed lag form of the AIDS model and after algebraic manipulation we obtain

$$W_t = -d\sum_{k=1}^{n}\lambda_k \ \Delta_k \ W_t + \Theta X_t - d\sum_{k=0}^{n}\delta_k \ \Delta_k \ X_t + du_t \ ,$$

where $d = 1/(1 - \sum_{k=1}^{n}\lambda_k)$. This provides point estimates of the previously defined long-run multiplier and its standard error. Since the AIDS model is expressed in a dynamic form without any restrictions, it is referred to as the general dynamics AIDS (GD/AIDS). The GD/AIDS model nests partial adjustment, autoregressive, and static versions of the AIDS model. Thus, this model provides an opportunity to test for alternative model specifications. The generalized partial adjustment model (GP/AIDS) can be obtained by imposing $\alpha_k = 0$ for k...1 and β_k=0 for k=1, 2, ..., n. Similarly, the static model(S/AIDS) can be obtained by imposing α_k and $\beta_k = 0$ œ k.

Following the suggestion of Friesen (1992), demand systems for this study are specified as GD/AIDS and the nested models are tested by imposing appropriate parameter restrictions on the GD/AIDS model. The final specification of the demand system to be used is chosen according to the test results for the dynamic structure.

Data and Estimation

Two separate demand systems, one for durum and the other for spring and other wheat classes, were estimated for the United States and the EU. As indicated earlier, a separate demand equation for durum wheat is justified because there is little substitutability between durum and any other type of wheat. The durum demand system for the United States includes durum from domestic production and imported Canadian durum. The other demand system for

the United States includes domestic spring and other wheat and also imported Canadian western red spring wheat. Even though the United States imports some durum from the EU in the form of pasta, it was not included in the durum demand system because the quantities are negligible.

Similarly, the EU durum demand system includes the domestically produced durum, and durum imported from Canada and the United States. The other demand system for the EU includes domestically grown common wheat, spring wheat imported from the United States and Canada, and other types of wheat imported from the United States.

Data on U.S. domestic prices for wheat classes were collected from the *Wheat Situation and Outlook* report. The prices of U.S. other wheat were calculated by taking the weighted average of hard red winter, white, and soft wheat according to their share in consumption. EU domestic wheat prices for durum and common wheat were collected from *Agra Europe*. A time series of delivered prices in local currencies for imports were calculated for each wheat class by taking into account the import tariffs and freight rates. The U.S. tariff on wheat is from the USDA, whereas data on EU import levies are collected from *World Wheat Statistics* and *World Grain Statistics*. FOB prices of wheat by classes for Canada and the United States are collected from *International Wheat Statistics* and *International Grain Statistics*, published by the International Wheat Council.

Annual data for 1971/72 to 1992/93 were used for estimating the demand systems. After estimating the GD/AIDS model, alternate models such as partial and static AIDS models were tested by imposing appropriate coefficient restrictions on the GD/AIDS model. The theoretical demand restrictions of adding-up, homogeneity, and symmetry are also maintained in comparing the different models. As suggested by Anderson and Blundell (1982), economic restrictions such as symmetry and homogeneity are imposed only on long-run parameters of GD/AIDS. The

test involved estimating unrestricted and restricted models and computing the likelihood ratio test statistics. The likelihood ratio test statistic is asymptotically distributed as chi-square with degrees of freedom equal to the number of restrictions.

Empirical Results

Table 1 reports the test results on the alternate dynamic specifications to represent the demand functions. The likelihood ratio test statistics indicate that the null hypothesis of the generalized partial adjustment model (GP/AIDS) cannot be rejected over GD/AIDS. But both the dynamic specifications (GD/AIDS and GP/AIDS) are preferred to the static AIDS model for all the demand systems. Although both dynamic specifications are acceptable, the results presented here are for GD/AIDS.

Having established the dynamic structures, the next step is to test the theoretical restrictions of homogeneity and symmetry with the adding-up restrictions imposed. First, homogeneity is tested and, in the next step, both homogeneity and symmetry are tested simultaneously. The results show that both homogeneity and symmetry are accepted for all the demand systems in the long run (Table 2).

Finally, each demand system is specified as a GD/AIDS model and is estimated using three-stage least squares with symmetry and homogeneity imposed. After estimating the demand systems, the coefficients of the deleted equation for each demand system are retrieved using the adding up constraint. Tables 3 and 4 present the estimated long-run coefficients, standard errors, R squares, and Durbin-Watson statistics for U.S. durum, spring, and other wheat demand systems. The R^2 values indicate relatively good explanatory power for the U.S. equation system. Most of the long-run parameters in the demand systems are significant, suggesting that the specification is appropriate. Similarly, Tables 5 and 6 report the estimated and retrieved long-run coefficients along with standard error, R-square, and Durbin-Watson for the EU demand systems.

Estimated long-run coefficients are converted to their respective price and expenditure

elasticities using the average value from 1988 to 1993. Uncompensated price and expenditure elasticities for the U.S. and the EU are presented in Tables 7 and 8. Table 7 presents the own- and cross-price elasticities, along with expenditure elasticities for durum, spring, and other wheat of different origins consumed in the United States. In Table 7, the own-price elasticity for U.S. durum is !1.164, whereas the price elasticity for Canadian durum is !5.389 in the U.S. domestic market. This suggests that a 1 percent decrease in U.S. durum price will increase the demand of U.S. durum by 1.164 percent but the same decrease in the Canadian durum price will trigger a 5.389 percent increase in U.S. imports of Canadian durum wheat. Similarly, both the cross-price elasticity and the expenditure elasticity are higher for Canadian durum. This indicates that Canadian wheat is more price responsive than U.S. durum in the U.S. domestic market.

The lower portion of Table 7 reports the own- and cross-price elasticities and expenditure elasticities of U.S. spring and other wheat demand system. As with Canadian durum, Canadian spring wheat is also more price responsive relative to U.S. spring and other wheat in the U.S. domestic market. For example, the own-price elasticity of U.S. spring is !0.849 and other wheat is !0.243 as compared to a price elasticity of !2.756 for Canadian spring wheat. The expenditure elasticity of Canadian spring wheat is also higher than the expenditure elasticities of U.S. spring and other wheat. The higher price response of Canadian wheat in the U.S. market may be due to the fact that the share of imported Canadian wheat in U.S. consumption is very small and Canadian durum and spring wheats sell at a premium because of quality differences between the two countries.

Table 8 reports own- and cross-price elasticities along with expenditure elasticities for EU durum, U.S. durum, and Canadian durum in the EU domestic market. Unlike the durum

elasticity in the U.S. market, price elasticities of both domestic and imported wheat are very comparable. U.S. durum seems to be slightly more price responsive than Canadian and EU durum in the EU domestic market. Other interesting results are the negative cross-price elasticities between U.S. and Canadian durum wheat and also the negative expenditure elasticities for these two wheats.

The lower portion of Table 8 reports price and expenditure elasticities for EU common wheat, Canadian spring, U.S. spring, and U.S. other wheat in the EU domestic market. EU common wheat and U.S. other wheat, which includes hard red winter, soft red and white wheat, are more price responsive than both U.S. and Canadian spring wheat. The low price responsiveness of spring wheat compared with other classes of wheat may be due to the quality differential between these two wheat groups. Spring wheat is preferred for baking purposes because of its higher protein content and sells at a premium. EU common wheat and U.S. other wheat are less response to price variations under these circumstances.

Like durum wheat, negative cross-price elasticities (a complementary relationship) exist between spring and other wheat (both U.S. and EU) but the cross-price elasticities are positive between U.S. and Canadian spring wheat and also between EU common wheat and U.S. other wheat. Positive cross-price elasticities between wheat of similar quality, i.e., U.S. spring and Canadian spring or U.S. other wheat groups and EU common wheat, are expected because wheat of similar quality substitutes for each other. On the other hand, positive price elasticities of U.S. and Canadian spring wheat with respect to the price of either U.S. other wheat or EU common wheat and negative price elasticities of U.S. other wheat and EU common wheat with respect to the price of U.S. or Canadian spring may be explained by the fact that millers in the EU blend cheaper wheat, such as EU common wheat and U.S. other wheat, with wheat having

higher protein content (spring wheat) to obtain the preferred characteristics.

Price and expenditure elasticities estimated in this study are not directly comparable with those from other studies because of the difference in assumptions and methods. For example, Alston, Grey, and Sumner (1994) reported demand elasticities of Canadian durum and U.S. durum in the U.S. domestic market to be !7.25 and !3.77, respectively, as compared to our estimates of !5.39 and !1.16. Similarly, the price elasticity of Canadian hard spring wheat in the U.S. domestic market is estimated to be !2.76 as compared to !9.65 by Alston et al.(1990). They did not estimate the elasticities econometrically, but rather used an Armington formula to calculate price elasticities by wheat classes from assumed elasticities of substitution between classes and the overall price elasticity of wheat borrowed from other studies.

Conclusion

This study estimates demand elasticities by wheat classes for the United States and the EU using a general dynamic AIDS specification. Demand functions were specified from the test results of alternate dynamic structures, which suggests that dynamic specification is preferred over the static AIDS specification for all the demand systems. The estimated price elasticities for the U.S. domestic market indicates that imported Canadian durum and spring wheat are highly price responsive compared with these domestic wheat classes in the U.S. market. If this is true, Canadian farm programs (input subsidies) that reduce prices of Canadian wheat in the U.S. market or U.S. programs (Export Enhancement Program) that raise U.S. wheat prices could be expected to give rise to substantial substitution of Canadian for U.S. wheat. Even the expenditure elasticities of Canadian wheat are higher than their respective counterparts of U.S. wheat in U.S. domestic markets.

In contrast to the United States, where price responsiveness depends on national origin

(imported wheats are more price responsive than domestically produced wheat), in the EU, price responsiveness varies according to the quality of wheat rather than by national origin. For example, variations in the prices of EU common wheat and U.S. hard red winter and soft wheat trigger greater response than U.S. or Canadian spring wheat. The lower response of spring wheat to price variations is justified because of its higher quality. It is also found that in the EU, complementary relationships exist between spring and other wheat groups. This complementary relationship between the lower and higher quality wheat in the EU is not surprising because EU millers blend cheaper wheat such as EU common wheat and U.S. other wheat with high protein (spring) to obtain the preferred characteristics.

Table 1. Likelihood ratio tests results for alternate dynamic structures

Demand Systems	GD/AIDS ÷ GP/AIDS	GP/AIDS ÷ S/AIDS	GD/AIDS ÷ S/AIDS
U.S. Durum			
χ^2	5.6	4.49	9.49
degrees of freedom	3	1	4
critical value	7.81	3.84	14.76
U.S. Spring and Other Wheat			
χ^2	8.7	6.67	27.45
degrees of freedom	8	2	10
critical value	15.58	5.99	18.31
EU Durum			
χ^2	6.95	6.34	21.37
degrees of freedom	6	2	8
critical value	12.59	5.99	15.51
EU Spring and other Wheat			
χ^2	18.8	9.65	46.24
degrees of freedom	15	3	18
critical value	24.99	7.81	28.87

Table 2. Test results on economic restrictions

Demand Systems		Homogeneity	Homogeneity and Symmetry
U.S. Durum	χ^2	1.5	1.5
	df	1.0	1.0
	CV	3.84	3.84
U.S. Spring and Other Wheat	χ^2	0.50	1.6
	df	2.00	3.0
	CV	5.99	7.81
EU Durum	χ^2	3.41	3.79
	df	2.00	3.0
	CV	5.99	7.81
EU Spring and Other Wheat	χ^2	3.69	5.92
	df	3.00	6.0
	CV	7.81	12.59

Table 3. Estimated coefficients and standard errors for the U.S. durum demand system

Share	γ_{i1}	γ_{i2}	β_i	α_i	R^2	DW
U.S. Durum	-0.572 (0.25)	0.572	-0.281 (0.115)	1.894 (1.137)	0.71	1.39
Canadian Durum		-0.572	0.281	-0.894		

Table 4. U.S. spring and other wheat demand system

Share	γ_{i1}	γ_{i2}	γ_{i3}	β_i	α_i	R^2	DW
U.S. Spring	0.151 (0.10)	-0.163 (0.109)	0.012	-0.08 (0.028)	0.993 (0.261)	0.563	1.584
U.S. Other Wheat		0.227 (0.132)	-0.00284	0.069 (0.032)	0.128 (0.302)	0.472	1.36
Canadian Spring			-0.0093	-0.01	-0.122		

Table 5. Estimated coefficients and standard errors for the EU durum demand system

Share	γ_{i1}	γ_{i2}	γ_{i3}	β_i	α_i	R^2	DW
EU Durum	-0.301 (0.129)	0.151 (0.086)	0.1497	0.474 (0.141)	-3.273 (1.182)	0.759	1.236
U.S. Durum		-0.301 (0.129)	0.229	-0.183 (0.076)	1.631 (0.639)	0.562	0.98
Canadian Durum			-0.378	-0.291	2.642		

Table 6. **EU** spring and other wheat demand system

Share	γ_{i1}	γ_{i2}	γ_{i3}	γ_{i4}	β_i	α_i	R^2	DW
EU Common Wheat	-0.006 (0.049)	-0.0339 (0.009)	-0.0168 (0.015)	0.057	0.1087 (0.023)	-0.245 (0.237)	0.778	1.52
Canadian Spring		0.0261 (0.0072)	0.0099 (0.0037)	-0.0022	-0.048 (0.012)	0.545 (0.128)	0.648	1.533
U.S. Spring			0.025 (0.0071)	-0.018	-0.0304 (0.0085)	0.356 (0.088)	0.843	1.847
U.S. Other Wheat				-0.0365	-0.0302	0.345		

Table 7. Estimated uncompensated elasticities for the U.S. domestic market

Type/Source	Demand Elasticities with respect to the price of			Expenditure Elasticities
Durum	U.S. durum	Canadian durum		
U.S.	-1.164	0.518		0.647
Canadian	1.394	-5.389		3.996
Spring and Other Wheat	U.S. Spring	U.S. Other Wheat	Can. Spring	
U.S. Spring	-0.849	-0.231	-0.533	1.084
U.S. Other Wheat	0.457	-0.253	0.056	0.654
Can. Spring	-2.403	1.728	-2.756	3.431

Table 8. Estimated uncompensated elasticities for the EU domestic market

	Demand Elasticities with respect to the price of				Expenditure Elasticities
Durum	EU	U.S.	Canada		
EU	-1.899	0.1681	0.083		1.648
U.S.	3.379	-1.979	-0.301		-0.963
Canadian	2.978	-0.326	-1.125		-1.527
Spring and Other Wheat	EU common	Canadian Spring	U.S. Spring	U.S. Other wheat	
EU common	-1.114	-0.351	-0.149	0.674	1.096
Canadian Spring	0.208	-0.453	0.249	-0.053	0.048
U.S. Spring	0.408	0.325	-0.376	-0.544	0.187
U.S. Other wheat	6.264	-0.122	-1.237	-4.017	-0.504

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