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# Determinants of Wheat Import Demand

Daniel J. Plunkett

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### **Abstract**

Italy imports wheat from outside the European Community due to the demand for the highest quality wheat available. The protection afforded by the EC's variable levy results in U.S. and Canadian wheat costing 50 percent more in the Italian market than domestic EC wheat. However, U.S. and Canadian wheats have intrinsic characteristics which meet the exact requirements for certain purposes. These include high protein, appropriate color (for durum wheat), and, most important, a wide range of gluten performance standards. Italian importers pay not only the wheat price for the weight of any impurities in the shipment, they also must pay insurance and freight, as well as the variable levy. Thus dockage is considered an economic factor in their purchasing decisions, rather than a technical impediment in the milling process. Dockage and foreign material are less important to Italian traders and millers when the protein and gluten are satisfactory, that is, when their customers are pleased with the performance quality of the product.

### **Acknowledgments**

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## Preface

This report is 1 of 17 reports covering 18 wheat-importing countries prepared by the Economic Research Service (ERS) in support of a comprehensive study of cleaning U.S. wheat destined for export. Similar reports are forthcoming for corn and soybeans.

The Food, Agriculture, Conservation, and Trade Act of 1990 (FACTA) required the Federal Grain Inspection Service (FGIS) to establish or amend grain grades and standards to include, "...economically and commercially practical levels of cleanliness." The legislation required FGIS to determine if the benefits of cleaning exceeded the costs. FGIS subsequently asked ERS to conduct the study. The comprehensive study on wheat included two major components: 1) economic-engineering studies of the cost of wheat cleaning in the United States and estimates of domestic benefits from cleaning and 2) a series of in-country interviews of buyers in major wheat-importing countries to determine the effects of cleaner U.S. wheat on sales in these markets.

The results of this work have been prepared in a three-volume set:

"Economic Implications of Cleaning Wheat in the United States" (AER-669), by B.T. Hyberg, M. Ash, W. Lin, C. Lin, L. Aldrich, and D. Pace;

"The Role of Quality in Wheat Import Decisionmaking" (AER-670), by Stephanie Mercier; and

"The Costs and Benefits of U.S. Cleaning Wheat: Overview and Implications" (AER-675), by William Lin and Mack Leath.

The 18-country case studies form the foundation for the results of the international component of the wheat-cleaning study. The 18 countries studied accounted for 58 percent of world wheat imports and 63 percent of U.S. wheat sales in 1991. Each report has two components: background on the wheat-marketing policies, institutions, and distribution system in the wheat-importing country and results of interviews of wheat traders, processors, and government officials. All the interviews were completed during April-September 1992, and all followed a similar format. Each interview team consisted of both a commodity specialist and a country specialist. They attended a series of seminars on grain quality issues, data collection, and interview procedures before doing their interviews.

All the interviews followed a specific set of guidelines. An advisory panel of government officials, private traders and trade association members helped develop the questions, which consisted of five topic areas:

- The most important factors in the choice of a supplier country;
- Quality factors most important to the importer's purchase decisions and the importer's perception of wheat purchased from their suppliers;
- Contract specifications the importer uses to communicate preferences;
- The level of dockage in the shipments the importer receives and the costs of removing it; and
- If U.S. wheat were cleaner, would the importer purchase more and/or be willing to pay more?

The background information on the wheat-importing country and the responses from the interviews provide a unique insight into the role of quality factors in the wheat purchase decisions of the major importers of U.S. wheat.

Alan J. Webb  
Coordinator, Country Case Studies

**Reports in the Series, "Determinants of Wheat Import Demand"**

**Country study Authors**

Brazil	Emily McClain and Erin Dusch
China	Frederick Crook, William Lin and Hunter Colby
Egypt	John Parker and Shahla Shapouri
Ghana and Togo	Margaret Missiaen and Mark Smith
Indonesia	Stephen Magiera
Italy	Daniel Plunkett
Japan	Lois Caplan and Alan Webb
Morocco	Karen Ackerman
Pakistan	Rip Landes and Mark Ash
Philippines	Carol Levin and Chin-Zen Lin
Russia	Sharon Sheffield
Sri Lanka	Rip Landes and Mark Ash
South Korea	Terri Raney and Nancy Morgan
Taiwan	Sophia Huang and William Lin
Tunisia	Rebecca Lent
Venezuela	Parveen Setia and Erin Dusch
Yemen	John Parker and Demcey Johnson

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## Summary

The primary consideration in the demand for imported wheat in Italy is the availability of wheat of a higher quality than that produced within the European Community (EC). The protection afforded by the EC variable levy allows Italian, French, and British wheat to dominate the purchases made by Italian millers, bakers and pasta makers. Non-EC wheat is, on average, priced 50 percent higher than Community wheat, so sales are made only in order to meet the demanding standards for end-use characteristics.

In the Italian grain marketing system, it is the end users who specify to their suppliers the desired intrinsic characteristics. U.S. and Canadian common wheats (wheat varieties other than durum), valued for their high protein content and excellent gluten performance, are blended with EC wheat into the many combinations of flour necessary for the range of Italian baking products. There is great concern among Italian traders and millers about the declining protein and gluten quality of U.S. northern spring wheat. The quality of the 1991 crop was considered to be poor, and many of those interviewed urged greater U.S. attention to this perceived long-term decline. Italy buys about a third of a million tons of northern spring wheat from the United States every year.

For durum wheat, protein quantity and gluten quality are again important factors, but the determining characteristic in the purchase decision is color. Durum millers and a large pasta maker insist that only Canadian durum gives them the satisfactory yellow color consumers want in buying pasta off supermarket shelves. Since the early 1980's, most of the non-EC durum imported into Italy has come from Canada, helped by exclusive trade arrangements between the Canadian Wheat Board and one large Italian trading firm. The United States sells up to 75,000 tons of desert durum, used for certain pastas served in cold salads, as well as for blending to correct technical deficiencies in Community wheat.

In Italy, U.S. wheat is widely regarded as "dirty." Italian traders and millers tend to group dockage and foreign matter (FM) into one category called "impurities." Importers must pay insurance and freight, as well as the variable levy (averaging \$200 per ton in recent years), on all dockage, which has a far lower value once removed from flour. Thus dockage is considered an economic factor in their purchasing decisions, rather than a technical impediment in the milling process. Dockage and FM are less important to Italian traders and millers when the protein and gluten are satisfactory, that is, when their customers are pleased with the quality of the product.

Traders import using U.S. grades, but then sell to millers using standard Italian contracts. This leads to a gap in continuity which may result in the quality of U.S. wheat being disparaged unfairly. The Italians wish to harmonize the U.S. definition of shrunken and broken kernels with their more restrictive criteria.

The quality testing performed within the Italian marketing channel is highly sophisticated. Traders test for physical characteristics at the port, and millers conduct detailed performance tests on shipment sublots.

The reform of the EC's Common Agricultural Policy agreed to in May 1992 should lower the net price of U.S. wheat to Italian buyers, but will maintain the "Community preference," which favors wheat produced in the EC. The variable levy should decline by over 30 percent by July 1995. Since the price advantage for EC wheat will be maintained, it is uncertain whether the Italian market will buy more high-quality North American wheat than before.

A recent EC Directive permits the introduction into flour of "natural" vital wheat gluten. This law will eventually undo an Italian ban on the practice, since Italy must harmonize with EC rules. The effect on U.S. exports of high-protein wheat is uncertain, since there is no guarantee that wheat flour fortified with vital gluten will have the same performance characteristics sought by the discriminating Italian market.

# Italy

## Determinants of Wheat Import Demand

Daniel J. Plunkett

### Introduction

The current Republic of Italy is a parliamentary democracy established in 1948. It has the fifth largest economy in the industrialized world. Gross domestic product is estimated at over \$1.2 trillion for 1992 with per capita income over \$21,000 at current prices (table 1). Agricultural production accounts for about 5 percent of the economic output. The Italian population of 59.7 million has one of the lowest birth rates in Western Europe at 10 births per 1,000 persons. Approximately 1.3 million people are employed in agriculture, 5.4 percent of the labor force. Consumer prices have been rising at about 6 percent a year, with price increases slowing since 1990. Much of Italy's economic growth has been fueled by exports. Italy's current account balance has worsened in recent years, mainly due to the strength of demand by the Italian consumer.

Half of the land area of 391,000 square kilometers (about the size of Arizona) is under cultivation. Utilized agricultural area (UAA) in Italy has been declining over the last decade, from 17.8 million hectares in 1980 to 17.3 million in 1988. This is due to increasing urbanization and a loss of competitiveness for grains production in the north of the country vis-a-vis imports from France. Nearly 20 percent of agricultural land is under permanent crops such as grape vines and fruit trees. Sixteen percent of the UAA is planted to wheat.

### Wheat Supply and Demand Trends

Wheat is the staple carbohydrate in the Italian diet. Bread, bakery products, or pasta are eaten at every meal. The sophisticated palate of the Italian consumer requires exacting end-use performance from wheat flour. Since Italy and its EC partners produce a great deal of wheat, but cannot provide wheat of a high enough quality to satisfy all of these requirements, Italy is both an importer and exporter of wheat.

Table 1--Economic indicators for Italy

Item	Unit	1985-89 average	1990	1991	1992
Gross domestic product:					
At current prices	Trillion lire	996	1,312	1,427	1,535
At current prices	Billion dollars	677	1,095	1,151	1,237
Per capita--					
In 1985 prices (real GDP)	Billion lire	864	942	956	970
Percentage change	Percent	3.1	2.2	1.4	1.5
Domestic prices:					
Consumer price index					
Percentage change	Percent	6.24	6.5	6.4	5.6
Producer price index					
Percentage change	Percent	4.1	4.1	3.3	2.7
Balance of payments:					
Imports (fob)--					
At current prices	Billion dollars	131	214	212	225
Exports (fob)--					
At current prices	Billion dollars	127	209	206	218
Current account	Billion dollars	-3.7	-14.4	-20.6	-23.9
Exchange rate	Lire/dollar	1,472	1,198	1,240	1,241
Population	Millions	57.375	57.576	58.612	59.667

Source: DRI World Markets Report.

## **Production**

In Italy, total area planted to wheat (both common and durum) has declined by 40 percent since 1962, in part due to increasing yields. In recent years, durum area has declined from a 1989/90 high of 1.8 million hectares to 1.6 million hectares in 1992/93. Half of the area planted to durum in Italy is concentrated in Sicily and Apulia in the southern half of the country known as the Mezzogiorno. Area planted to common wheat also had a recent high in 1988/89 of 1.14 million hectares (ha), dropping to little over a million hectares in 1990/91.

Total wheat yields in Italy lag behind the rate for the EC as a whole, ranging between 50 and 70 percent of EC total wheat yields over the course of the 1980's. This is due in part because the average Italian farm of 7.7 ha is less than half the EC average size of 16.5 ha. The durum yield in 1989 was only 1.7 metric tons per hectare (t/ha), three-quarters of the EC average. Good growing conditions in 1990/91 raised durum yields to nearly 3 t/ha, a record high. Italian production of durum peaked at 4.9 million tons in 1990/91, with soft wheat at 4.5 million tons in that year (app. table 1).

The relative importance of Italy in total EC wheat production has declined over time, in part due to new members' expanding production under the EC's Common Agricultural Policy (CAP), but Italy is still one of the four big producers in the EC, along with France, Germany, and the United Kingdom. Italy produced nearly a quarter of the wheat grown within the 12 current EC countries in the early 1960's. Since institution of the CAP in 1968, this share has declined to only 10 percent of total wheat grown within the EC-12 in 1991.

## **Grain Quality in Italy and the EC**

One aspect of agriculture in which the EC does not have a common policy is in grading standards. In a session of the International Wheat Council in spring 1992, major importing countries such as Japan and Finland, as well as the United States, suggested that they would welcome the transparency in market information provided by an EC-wide grading system. The EC delegate spoke of how difficult it has proven for the member states to agree on a uniform grading system, insisting that contract specifications between buyer and seller are sufficient to ensure adequate grain quality. As explained below, this has not always worked in Italy.

High support prices and intervention buying under the CAP encourage wheat producers to expand production. The policies leading to the EC's huge surpluses (prior to CAP reform) did not place major emphasis on improving the quality of EC wheat. Instead, CAP policies favor low quality, high-yielding wheat. Italy finds it must import much of its high-protein wheat from outside the EC for the intrinsic characteristics needed for specific products.

The intervention system is the main CAP influence on quality, since any product sold into intervention must meet certain minimum quality and eligibility criteria. The EC also sets price differences for grain bought into intervention according to different quality characteristics of the product. Quality characteristics associated with the grain-handling process include: minimum percentages of sound basic grain, moisture, test weight, broken grains, grain and mixture including shrunken kernels, impurities, and sprouted grains. Characteristics associated with the intrinsic quality of the grain include falling numbers, protein, ash content, and the dough test.

In Italy, EC intervention buying is conducted by AIMA (Azienda di Stato per gli Interventi sul Mercato Agricolo, State Agency for Agriculture Market Intervention). Under the terms of the CAP reform compromise agreed to in May 1992, the minimum technical requirements for wheat sold into intervention are:

- test weight of 72 kilograms per hectoliter
- Hagberg Falling Number of 220
- Zeleny index of 20
- maximum proportion of cereals of impaired quality of 10 percent, cut from 12 percent
- maximum impurity level of 7 percent reduced from 12 percent
- feed wheat will no longer be accepted into EC intervention unless there is a market disturbance.

Italy does not have a grading system for wheat. Instead, there are laws governing the content of food products. For example, Italian law specifies that the semolina flour used in producing pasta must have at least 10.5-percent protein. This requires durum wheat of at least 11.5-percent protein. Italian law also requires a maximum ash content of 0.9 percent in pasta. Italian bakery products are marked as being made with flour of the "00" type. This simply means that the flour meets the minimum standards for food usage. These laws are not targeted under the harmonization goals of the EC single market program.

### **Consumption**

Italy has the highest per capita consumption of cereals in the EC, at 110 kilograms per head in 1989/90. Wheat consumption is approximately 104 kg/head, well above the EC average of 72 kg/head. As one might expect, pasta consumption by the Italian population is impressive, on the order of 25 kg per capita. But Italian consumption of common wheat is still above the EC average for total wheat. Total consumer spending on bread, pasta, and cereal derivatives amounted to 21.3 trillion lire (\$17.2 billion) in 1992, equal to 15 percent of total consumer spending on food and 2.3 percent of overall family spending.

Research in the late 1980's showed that of 6.3 million tons of domestic food consumption of common wheat, 4.6 million tons were used by the bakery industry for bread production, 170,000 tons for cookie production, and 120,000 tons for confectionery products. Traditionally, Italians prefer hearth bread, which is

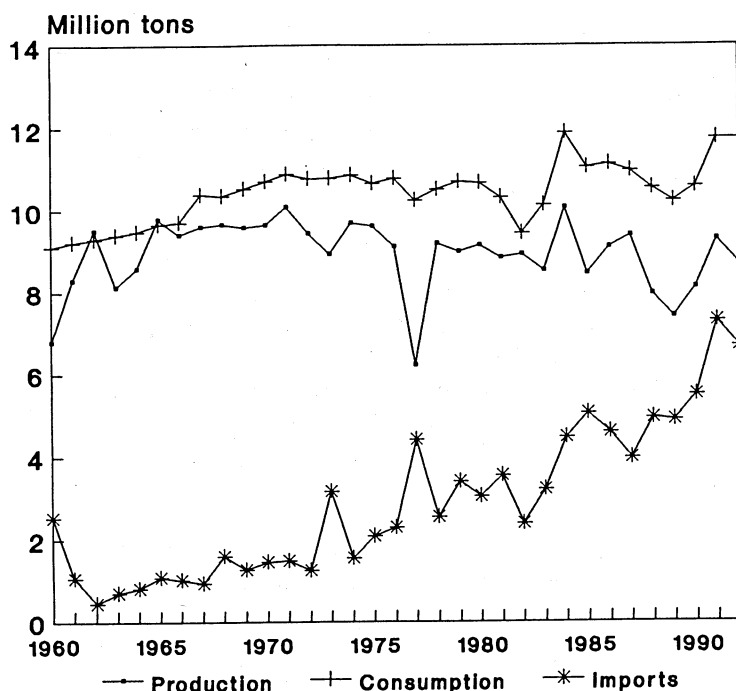
baked without a pan and appreciated for the hard crust and soft inside. A typically Italian phenomenon is that 460,000 tons of wheat were sold as flour to consumers for home baking. This is a reflection of the strong preference for fresh food and family-style eating still prevalent in much of Italian society.

Total wheat consumption in Italy has been more or less stable between 10 and 11 million tons since 1967 (fig. 1). Consumption of 11.7 million tons in 1991 and 1992 is close to the high point of 11.9 million tons in 1984. Since 1983, Italy has stepped up its use of wheat as animal feed, peaking close to 2 million tons between 1985 and 1987. Italian livestock producers rely much more heavily on coarse grains, particularly barley, in their feed rations than do other EC livestock producers. Feed use makes up only 12 percent of total use of wheat in Italy, as opposed to 40 percent in the EC as a whole for 1991.

The well-developed Italian pasta-manufacturing industry, which claims to produce the best pasta in the world, demands high-quality durum. Some regions in southern Italy use small quantities of durum to make bread, but most goes into pasta, which by law must use durum wheat semolina. Durum wheat production in Italy normally exceeds domestic consumption, but the millers choose to import due to quality considerations: the domestic pasta industry requires superior durum (for yellow

Figure 1

### Supply and use of wheat, Italy, 1960-92



Note: Imports include intra-EC trade.  
Source: USDA.

color, strength of the gluten, cooking properties) imported from North America to be blended with domestic EC durum.

Italian growers of durum have made efforts to improve the quality, with only limited success. Nevertheless, the pasta maker and some of the millers interviewed expected the quality of EC durum to continue to improve in terms of a suitable yellow color and appropriate strength of gluten. The protein content of Italian durum is adequate, although variable, averaging 15.2 percent in 1989, a full point above the 1988 level. Test weights ranged from 80 to 82 kg/hl., down slightly from the year before. The Creso variety of durum is planted on 30 percent of Italian durum area, with other varieties such as Appulo, Latino, and Duilio important as well. These varieties sometimes exhibit technical deficiencies in particular areas of importance to pasta makers, such as protein quantity and gluten quality. Italian and Greek durum, in addition to use in blending, also goes into the production of semolina for export, particularly to Algeria, where its use in couscous does not emphasize the same characteristics as for pasta.

### **Imports**

Italy typically imports about 5 million tons of wheat per year, of which about 70 percent is common wheat. In 1990/91, the net value of all Italian imports of common wheat was 1.2 trillion lire (\$986 million). For durum wheat, the net value was 635 billion lire (\$530 million).

Italy has become a residual market for the EC bread wheat crop. Due to the preference accorded by the EC variable levy, 85-90 percent of Italian imports of common wheat come from other EC countries, primarily France and the UK (fig. 2). French wheat by rail is cheaper than local Italian wheat in northern Italy. In the south, imported wheat from the UK or France arriving by boat is often the only common wheat present. Wheat imports from Germany are growing, with German wheat evaluated by millers and grain traders as being of good to very good quality.

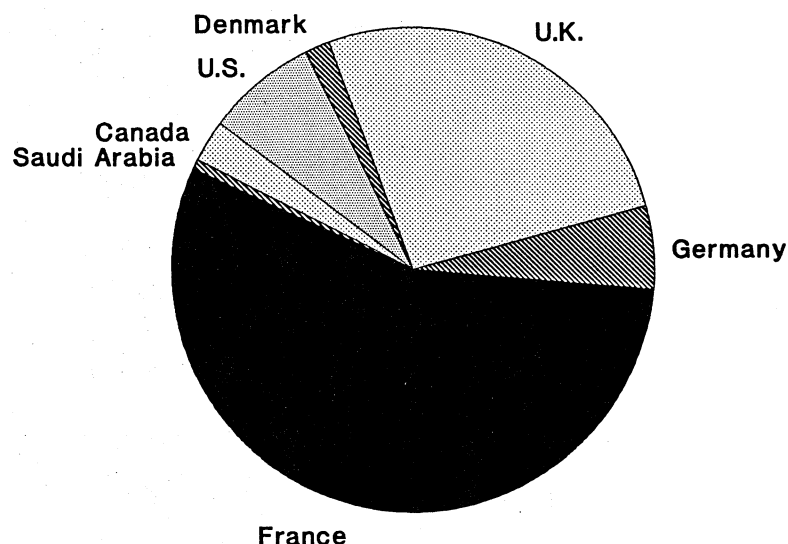
Imports of wheat from outside the Community are purchased solely for high-quality baking and pasta-making characteristics. U.S. and Canadian common wheats, valued for their high protein content and excellent gluten performance, are blended with EC wheat into the many combinations of flour necessary for the range of Italian baking products. Italian traders and millers expressed great concern about declining protein and gluten quality of U.S. northern spring wheat.

Between 1968 and 1992, Italy annually imported about 1 million tons of wheat from outside the EC, evenly divided between common and durum wheat (app. tables 2 and 3). In the 1970's, Italy was buying about 720,000 tons of durum wheat and 475,000 tons of common wheat from non-EC sources per year. In the 1980's, Italy decreased durum imports to under 500,000 tons and increased common wheat imports to about 540,000 tons.



Figure 2

## Italian common wheat imports by supplier country, 1991



Source: Italian Grain Traders  
Association

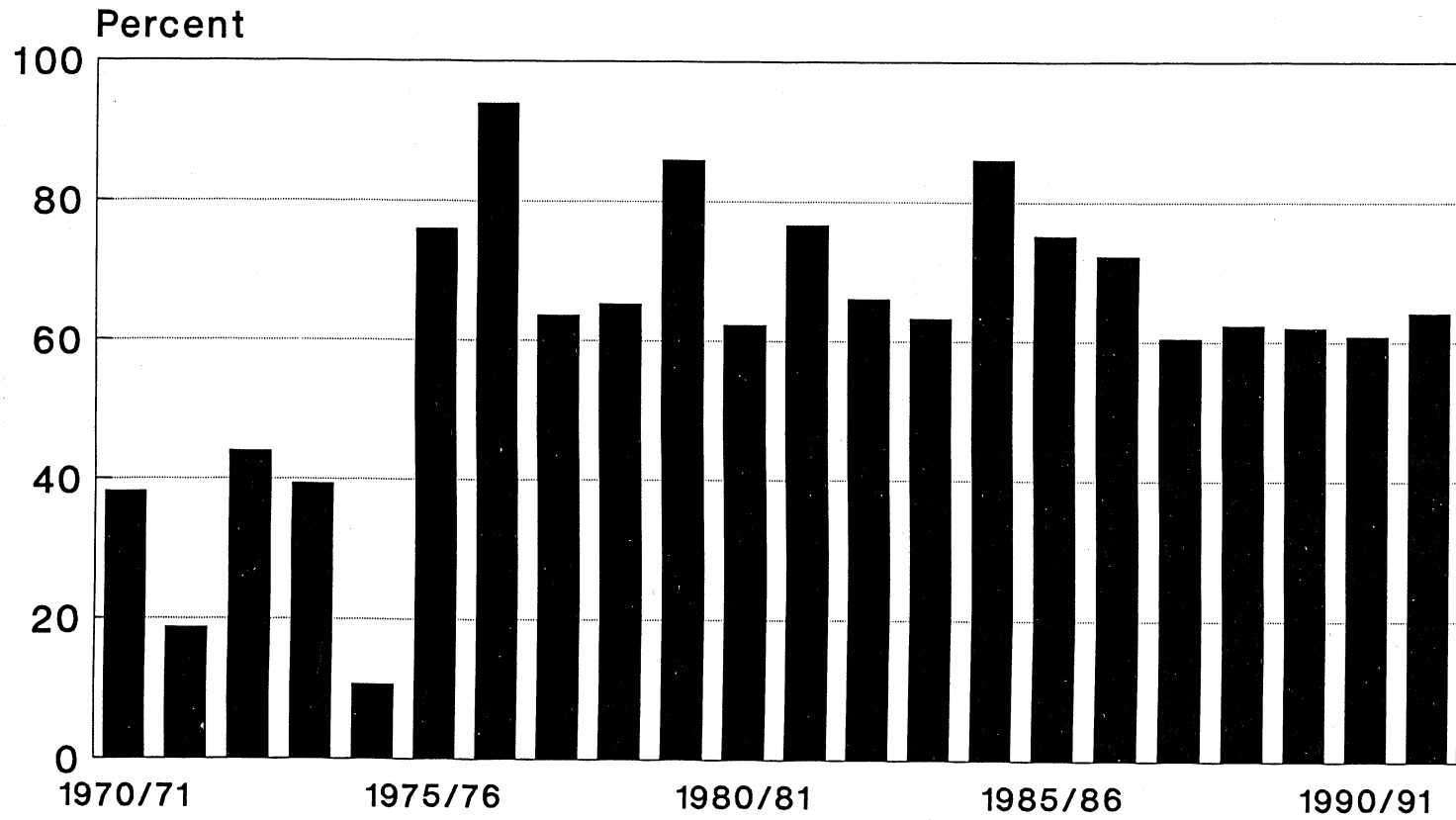
The United States exported an average of 250,000 tons of common and 165,000 tons of durum wheat to Italy per year during the last quarter century. The United States doubled its annual volume of common wheat exports from 179,000 tons in the 1970's to 365,000 tons in the 1980's. Since 1986, the United States has maintained about a 60-percent share of Italian imports of common wheat from outside the Community (fig. 3). Exports of durum fell from 170,000 tons annually in the 1970's to 134,000 tons in the 1980's.

In recent years, total wheat imports from the United States have been stable at about 350,000 to 500,000 tons per year, mostly hard red spring wheat and minor quantities of desert durum. Estimates by the Italian Grain Traders' Association showed imports of common wheat during 1991/92 at 350,000-380,000 tons from the United States and 180,000-190,000 tons from Canada. USDA data for calendar year 1992 show U.S. exports of 299,000 tons of wheat to Italy.

Federal Grain Inspection Service (FGIS) data on the quality of U.S. hard red spring (HRS) exported to Italy show an improvement in dockage, foreign material, and protein content since the mid-1980's (app. table 4). Shipments for 1991 showed 0.78 percent dockage, the highest since 1987 after four straight years of

Figure 3

# U.S. share of Italian extra-EC imports of common wheat



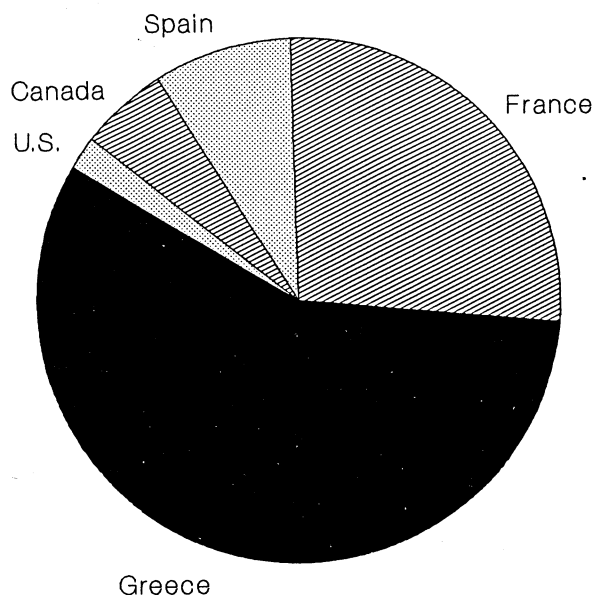
Source: Canadian Wheat Board; Italian Grain Traders Association; IWC; USDA.

improvement. The 1984-91 average for dockage was 0.89 percent. FM content in HRS shipments has declined in five straight years, to 0.24 percent. The 1984-91 average for FM was 0.38 percent, easily meeting the standard for U.S. No. 1 wheat. Protein content has come up a full point in the last 5 years, to an average of close to 15 percent since 1989. Improvements in the cleanliness of U.S. wheat have come following an episode involving the quality of U.S. grain shipments. In 1986, a major Italian wheat importer complained that some shipments arrived in Italy with higher dockage than officially reported on FGIS certificates, and threatened to divert business to Canadian wheat. Since then, the situation has improved.

Data from the Italian Grain Traders' Association for the period July to December 1990 offer an excellent comparison between U.S. northern spring and Canadian western red spring (table 2). The U.S. wheat shipped during the 6-month period shown outperformed the Canadian wheat in almost every category. This is a good indication as to why Italian traders bought over twice as much U.S. common wheat as Canadian during this period.

Most Italian imports of EC durum come from Greece, France, and recently Spain (fig. 4). The durum produced in these countries is not of superior quality and only partially meets the requirements of the Italian pasta industry. Italian traders buy this durum in large volumes, much of which ends up sold into intervention stocks, or for processing into semolina for the export market, often to Algeria for couscous.

Figure 4  
**Italian durum imports  
by supplier, 1991**



Source: Italian Grain Traders Assoc.

Table 2--Comparison of supplier country performance for Italian imports of common wheat, July to December 1990

Supplier	Volume imported	Test weight	Protein content	Gluten content	Moisture content	Ash content
	Thou. tons	HI/kg	Percent	Percent	Percent	Percent
USA 1/	213,068	81.05	16.23	13.47	12.06	2.02
Canada 2/	93,681	83.02	15.96	13.35	12.44	2.05

	Falling number	Alveograph "W"	Alveograph "P/L"	Developing time	Farinograph "stability"	Total impurities
	Seconds			---Minutes/second---		Percent
USA 1/	410	237.96	0.36	5'02"	11'26"	3.06
Canada 2/	451	224.24	0.47	3'21"	9'18"	2.48

1/ Includes all common wheat.

2/ Canadian western red spring.

Source: Italian Grain Traders Association.

The EC has had an inward processing scheme for durum whereby a trader may import specified quantities of non-EC durum wheat without application of the variable levy so long as the firm is willing to export an equivalent volume of pasta or semolina made from EC durum without benefit of the Community's export refund.

For extra-EC imports, protein quantity and gluten quality are again important factors, but the determining characteristic is color. The greater part of non-EC durum imported into Italy comes from Canada, due to the favorable conditions permitted by the exclusive trading arrangements between the Canadian Wheat Board and one large Italian firm. The Italian Grain Traders' Association estimated 1991/92 imports of durum at 70,000-80,000 tons from the United States and 120,000 tons from Canada.

Canadian exports of durum wheat to Italy averaged about 330,000 tons since 1968. However, since 1987, Italy has reduced imports from Canada to about 160,000 tons a year. This can primarily be explained by the development of domestic EC durum production. Nevertheless, durum millers and the pasta maker interviewed insist that only Canadian durum gives them the satisfactory

yellow color consumers want in products they buy from supermarket shelves.

Since 1983, the United States has sold on average less than 70,000 tons of durum wheat annually. For many years, North Dakota durum was the main type of U.S. durum shipped to the Italian market. Since the mid-1980's, sales of North Dakota durum to the Italian market have been almost eliminated. The United States typically sells 25,000-75,000 tons of desert durum (durum grown in very arid soil) that are used for certain pastas served in cold salads, as well as for blending to correct technical deficiencies in Community wheat.

FGIS data for U.S. exports of durum to Italy show improvement in the consistency of dockage levels between 1984 and 1989 (app. table 5). The highest dockage levels found in durum shipments during those years declined from 1.48 percent in 1984 to 0.84 percent in 1989. The traders and millers interviewed in Italy considered there to be little problem with dockage and moisture content on shipments of desert durum.

### **Wheat Sector Policies**

An original member of the European Community, Italy is subject to the Common Agricultural Policy (CAP). Agricultural support policies are decided collectively by the 12 member states of the EC. The three overriding principles of the CAP are:

- 1) Creation of a single Community market
- 2) An internal preference for Community products
- 3) Common sharing of policy costs.

### **Producer Policy**

The EC supports producers through price support, intervention buying, import barriers, and export subsidies. Although the common prices are set in European Currency Units (ECU), the green rate system of agricultural exchange rates allows prices in some countries to be higher than in others. The EC and national government combine to provide aid for structural adjustment through the EC's Regional Policy and Social Policy. The Italian government offers assistance with marketing, input costs related to petroleum, and through the social security system.

The EC Commission and the Council of Ministers set intervention prices annually for common wheat and durum. These prices are set in European Currency Units (ECU), a basket currency to which most of the EC currencies are linked in a floating peg.

Intervention prices are converted into national currency, the lira, at the "green rates" of exchange set by the Commission and Council of Ministers in order to offset the effect of currency movements (table 3). The Italian green rate for cereals in 1991/92 was 1,761.45 lire per ECU. The nominal EC intervention price for bread wheat was 168.55 ECU/ton (\$243/ton) in 1991/92,

Table 3--Policy prices and agricultural conversion rate for Italy

Item	Unit	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
Common wheat:							
Intervention (bread)	Lire/ton	286,566	289,947	293,404	296,432	296,892	363,515
Threshold	Lire/ton	401,470	396,981	399,061	404,241	402,791	NA
Durum wheat:							
Intervention	Lire/ton	465,669	446,522	426,907	414,512	401,082	491,085
Threshold	Lire/ton	563,725	533,697	524,321	497,734	464,001	NA
Aid per hectare	Lire/ton	194,515	221,451	267,984	300,987	320,373	392,264
"Green" rate of exchange 1/	Lire/ECU	1,597	1,616	1,686	1,759	1,761	2,157

1/ Rate for 1992/93 is for period beginning February 3, 1993.

NA=not available.

Source: Western Europe Agriculture and Trade Report, USDA.

and for feed wheat 160.13 ECU/ton (\$231/ton).<sup>1</sup> For durum, the intervention price was 227.70 ECU/ton (\$329/ton) in 1991/92. These prices were not changed for 1992/93, although depreciation of the lira has changed the number of lire Italian producers receive.<sup>2</sup>

The intervention system acts as a buyer of last resort for Community producers when the market price falls below the intervention price set by the EC. However, due to the huge surpluses caused by the combination of high prices and guaranteed buying, the EC has had to place certain constraints on the intervention system in recent years. Beginning in 1988, wheat was bought into intervention at 94 percent of the intervention price, and only during certain months of the year. Under the 1988 budget stabilizing plan, if the total EC cereals harvest exceeded 160 million tons,<sup>3</sup> then the intervention price was reduced by 3 percent the following year. This occurred in every subsequent year except following the 1990/91 harvest, when the

<sup>1</sup>These conversions use an exchange rate of \$1.26 per European Currency Unit (ECU). It is also necessary to apply the EC's "switchover" coefficient of 1.145 applicable during 1991/92 to convert all ECU policy prices into "market" ECU's. This accounts for distortions in the policy price due to the EC's system of "green" rates of conversion.

<sup>2</sup>As of February 1993, the "switchover" coefficient had inflated to about 1.20. Beginning January 1, 1993, EC "green" rates are subject to change every 10 days in the event of currency fluctuation. This is a result of the elimination of border taxes between EC member states as part of the single market program.

<sup>3</sup>Excluding production from the five new German states.

overshoot of the Maximum Guaranteed Quantity was so small that the EC chose not to institute the stabilizer cut. Durum wheat producers in Italy received a supplementary aid, set for 1991/92 at 181.88 ECU/ha (\$262/ha). This compensated them for the lower durum yield, as well as serving social policy purposes since most Italian production is in the poorer southern regions.

The CAP reform compromise agreed upon by the farm ministers in May 1992 cuts the cereals intervention price an average 33 percent to the level of 100 ECU/ton (\$144/ton)<sup>4</sup> by 1995/96, and eliminates the buying-in reduction. Cereals producers will receive an income compensation payment rising to 45 ECU (\$65/ton) by 1985/86. Farmers growing durum in traditional producing areas will receive a supplementary 297 ECU/ha (\$428/ha), as compensation for a greater price cut. This provision should apply to most Italian durum producers.

### **Consumer Policy**

One of the principles of the CAP has been that the EC supports farm income through high commodity prices. This has resulted in consumers' supporting farm income through high retail prices. The CAP reform lowers the amount of support provided by consumers through high prices, and this should lower the price of bread, pasta, and bakery products.

There is a fundamental dichotomy in the pricing of wheat in the Italian market. Figure 5 shows the common wheat price over the last 4 years in the Milan Grain Exchange, demonstrating the premium buyers pay in importing from outside the EC. Italian and French wheat averaged \$256 per ton from July 1988 to January 1992. U.S. and Canadian wheat were quoted at 55 percent more, almost \$400 per ton. Over that 40-month period, Canadian wheat was quoted at an average of 81 cents more per ton than U.S. wheat.<sup>5</sup> This was only one-sixth of 1 percent of the market price. If there is a significant difference in quality between CWRS and NS, it is not reflected in the market price quotations.

Figure 5 uses prices quoted on the Milan Grain Exchange (Mercato dei Cereali de Milano). The price quotations do not reflect actual sales prices. The French wheat is considered of a standard common quality, although the exact physical and intrinsic characteristics are not specified in the price series. The Italian wheat, chosen as the price closest to the French wheat, is listed as "Buono Mercantile," with a moisture content

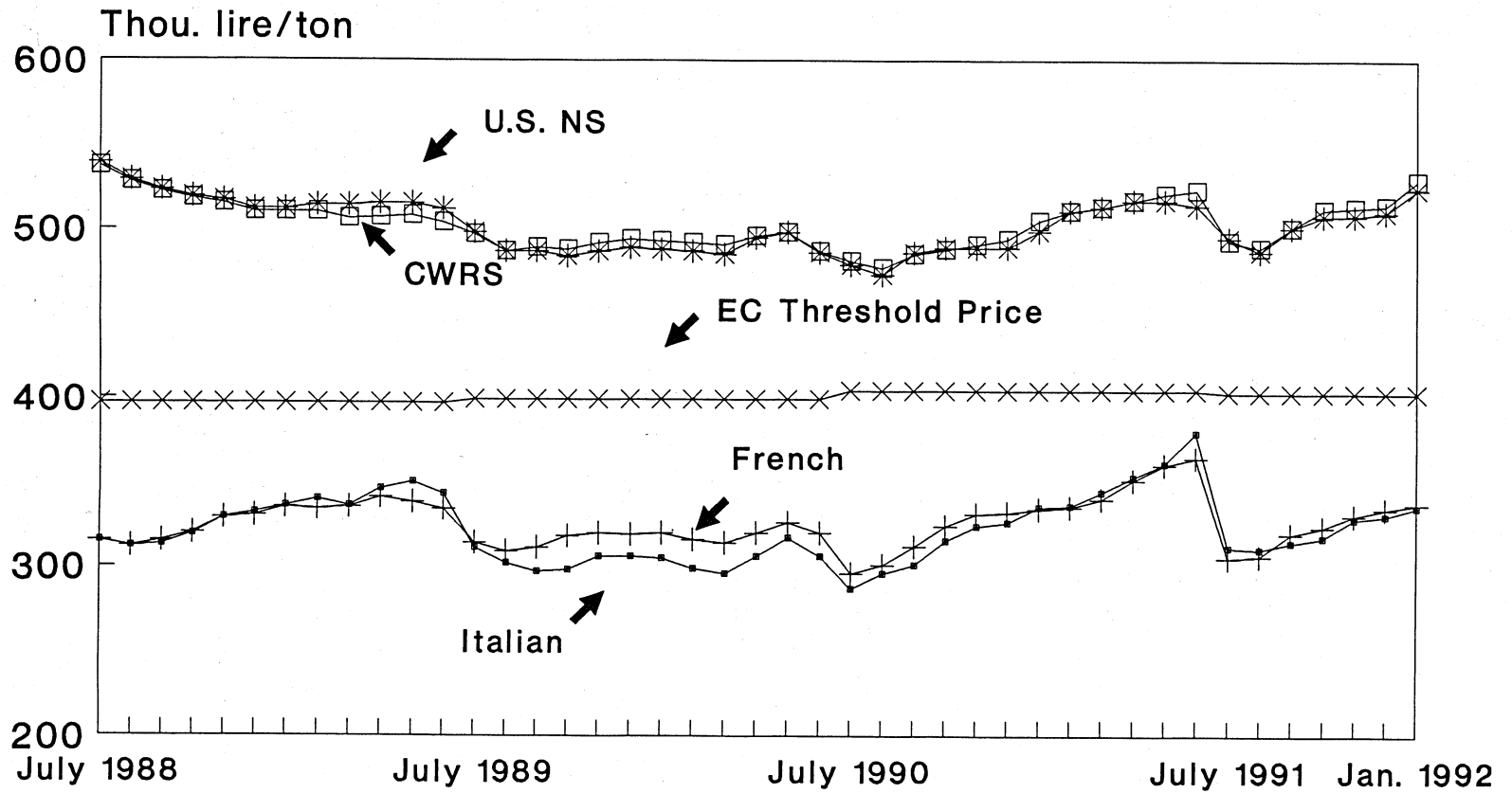
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<sup>4</sup>Using a "switchover" coefficient of 1.2 and a daily exchange rate from late February 1993 of \$1.20 per ECU. The 94-percent buying-in measure will likely be eliminated under CAP reform, so cereals will be bought in at the full intervention price.

<sup>5</sup>The Milan price series specifies Canadian western red spring (CWRS) and northern spring (NS), both Number 2 with 14-percent protein.

Figure 5

# Common wheat prices in Italy, July 1988 to January 1992



Threshold price is annual average.  
Source: Milan Grain Exchange



of 14 percent, maximum 2 percent impurities, and specific weight of 76 to 78 kg/hl. In recent years, four different kinds of Italian wheat have been quoted, with Buono Mercantile considered the lowest priced. The highest priced Italian wheat quoted is called "Varietá speciali," with moisture content of 14 percent, maximum 2 percent impurities, and specific weight of 77 to 80 kg/hl. This special variety wheat, commonly called "grani di forza" or "strength wheat" by traders and millers, had an average quotation of \$5.40 per ton more than the Buono Mercantile.

### **Trade Policy**

One of the pillars of the CAP is "Community preference," which ensures that EC produce will be cheaper than imports. In the cereals markets, this is effected through the EC variable levy, which fluctuates according to the world price of grain. In general, no imported wheat may enter the EC market below the threshold price. To ensure this, the EC Commission calculates a variable levy representing the difference between the threshold price and the lowest offered price from non-EC sources. The variable import levy equals the threshold price minus the landed (cif) price of wheat. Between July 1988 and September 1991, the variable levy on common wheat averaged \$186.28 per ton.

EC policy before CAP reform made this preference progressively more pronounced. One effect of the continuing stabilizer cuts in the intervention price was that the price gap between domestic and imported wheat became greater, since the threshold price was not part of the stabilizer mechanism.

Since the variable levy is applied to all import offer prices, there is price competition among wheats from outside the Community. Two potential exporters to the EC, with comparable quality wheat, will find the difference in their offer prices maintained by the variable levy system. The Commission also utilizes a quality coefficient<sup>6</sup> to adjust the variable levy for quality differences in imported wheat. A non-EC country exporting wheat of higher than standard quality will face a slightly higher levy due to the application of the quality coefficient, making the landed price (or price on the EC market) of such wheat higher.

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<sup>6</sup>The EC terms this the "coefficient of equivalence," denominated in ECU's. The coefficient adjusts the variable levy for variation in quality from the standard quality used to set the EC threshold price for each type of cereal. For wheat of higher than standard quality, the coefficient is subtracted from the cif price, effectively raising the size of the variable levy needed to reach the threshold price. For wheat of lower than standard quality, the coefficient is added to the cif price, effectively lowering the variable levy. These values are published in a number of sources, including the CAP Monitor and Home Grown Cereals Authority newsletter.

Differences between the quality coefficients assessed by the EC at the border reveal a great deal about the prevailing perception of relative quality among non-EC suppliers (table 4). Saudi wheat, usually the lowest import offer price, carries a quality coefficient slightly below that for U.S. northern spring (NS) and dark northern spring (DNS) Grades I or II of a minimum 13.5-percent protein. The coefficient for high-quality Canadian western red spring (CWRS) is 0.6 ECU per ton higher than for NS/DNS of a comparable protein level. For durum wheat, U.S. hard amber durum (HAD) I is considered equivalent to the standard quality (coefficient of zero), as is Canadian western amber durum (CWAD) III. Grades I and II of CWAD carry quality coefficients adding \$5.58 and \$4.80, respectively, to their import prices.

Assessment of the quality coefficient raised the value of border protection facing U.S. wheat to an average \$202.30 during the 39-month period from July 1988 to September 1991. This protection represented a full 40 percent of the market price for Italian and French wheat quoted on the Milan Grain Exchange during the same period.

The total premium (including border protection) Italian buyers were willing to pay for U.S. and Canadian wheat over EC wheat from July 1988 to January 1992 was \$142 per ton. During the 43-month period, Italian buyers paid a \$68 per ton premium above the threshold price for U.S. and Canadian wheat.<sup>7</sup> This \$68 premium is due mostly to the higher quality of the North American wheat imported into Italy. However, transportation and handling margins also make up part of this premium.

### **Marketing and Distribution**

Over the course of the 1980's, the Italian food industry underwent restructuring based mainly on mergers and takeovers in order to grow and maintain profitability. This process is characteristic of the entire EC as the integrated market matures and is perfected. In 1989, the Italian food industry had a turnover of 120-125 trillion lire (\$100 billion), with a value-added component of 24.5 trillion lire (\$20 billion). Italy is engaged in a concerted effort to upgrade the technological base of its food industry in order to create more of a global marketing strategy as well as serving better integrated regional and subregional markets.

**Storage.** Storage costs, both public and private, are quite high in the EC. Therefore, EC producers and traders have little incentive to store grain between marketing years. However, the oversupply problems of the CAP system are well known. Ending stocks represent 15 to 20 percent of wheat production throughout

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<sup>7</sup>This premium is reduced to \$62.60 when compared with the best Italian wheat. However, only limited quantities of the "grani di forza" are produced each year. Note that this premium compares the higher price paid for North American wheat with the standard quality used to determine the threshold price.

Table 4--EC coefficients of equivalence

Country of origin and cereal quality	Amount deducted from c.i.f. price	Amount added to c.i.f. price
	<u>ECU per ton</u>	
United States:		
HRS/NS/DNS I and II (13% to 13.4% protein)	13.30	0
HRS/NS/DNS I and II (13.5% to 13.9% protein)	14.21	0
HRS/NS/DNS I and II (14% to 14.4% protein)	15.11	0
HRS/NS/DNS I and II (14.5% or more protein)	16.02	0
Canadian common wheat:		
CWRS I (13% to 13.4% protein)	13.90	0
CWRS I (13.5% to 13.9% protein)	14.81	0
CWRS I (14% to 14.4% protein)	15.72	0
CWRS I (14.5% or more protein)	16.62	0
Saudi Arabian common wheat	14.00	0
U.S. durum wheat:		
HAD I	0	0
HAD II	0	1.21
HAD III	0	2.42
Canadian durum wheat:		
CWAD I	3.93	0
CWAD II	3.32	0
CWAD III	0	0
CWAD IV	0	0
CWAD V	0	2.42

Source: CAP Monitor.

the EC. Stocks have soared in 1992. In Italy, storage capacity for all wheat is estimated between 12 and 14 million tons: 3 to 4 million tons by cooperatives and consortia; 5 to 6 million tons by merchants and importers, of which 2 to 3 million tons are at port facilities; 2 to 3 million tons by millers, and 1 to 2 million tons by the food industry. The French Technical Institute for Cereals and Feeds (*Institut Technique des Cereales et des Fourrages*) reported in 1992 that the majority of the storage facilities in Italy were not using modern techniques. This does not bode well for ensuring the quality of domestic and imported wheat. At the beginning of the 1991/92 marketing year, durum intervention stocks in Italy were 1.4 million tons, while stocks for common wheat were only about 250,000 tons. In January 1992, intervention stocks of durum stood at 2.4 million tons.

**Domestic Milling, Baking, and Pasta Industries.** The Italian food industry shows a relatively low degree of concentration and internationalization, except in the new more highly processed, modern, consumer-oriented sectors. Of the 50 main food firms operating in Italy, only 4 do more than a trillion lire (about \$800 million) of business annually. The Italian market is not occupied solely by Italians, however, another characteristic of the new Europe. Twenty-three of the 50 leading food firms are associated with larger multinational groups based in other countries. Government intervention in the market, outside of the CAP, is not a major factor, since it is limited to tax relief and structural support such as investment in infrastructure and regional development.

Milling capacity in Italy is highly developed and very modern, but characterized by a large number of small mills. In general, the durum-milling sector is more highly concentrated than that for common wheat. The top six firms milling durum control over a third of durum milling capacity in Italy. For common wheat, however, the top six firms represent only 9 percent of total wheat-milling capacity in Italy.

The following analysis of milling capacity is broken down into three types of operations: those milling only common wheat, those milling only durum, and those milling both. In 1990, there were 736 establishments exclusively milling common wheat, 37 percent fewer than in 1980. Total milling capacity for these millers of common wheat was 33,000 tons of wheat daily in 1990, down slightly from 10 years before. These mills had an average capacity of 45 tons a day. While only 11 percent of the mills produced more than 100 tons a day, these accounted for half of the total milling capacity in this category.

There were 192 operations exclusively milling durum wheat in 1990, 9 more than in 1980. In 1990, these durum millers had a total capacity of nearly 20,000 tons a day, 53 percent more than in 1980. The average capacity for these mills was 103 tons a day. One-third of the mills produce more than 100 tons a day, accounting for 83 percent of total capacity.

In 1990, there were 85 millers with capacity to mill both common and durum wheat, 6 more than in 1980. But the milling capacity of these dual milling operations had risen by nearly 150 percent over that time, to 5,528 tons per day. The average capacity of these mills was 65 tons a day. One-fourth of the operations mill more than 100 tons a day, accounting for 61 percent of total capacity.

The 3.7 trillion lire (\$3 billion in 1989) Italian pasta industry is relatively highly concentrated, with 10 firms controlling 62.5 percent of the market in 1990, up from 50 percent in 1984. Italy has the largest European pasta maker, Barilla, which has 18 percent of the EC market, followed by the French BSN with 9 percent and the German Birkel with 5 percent. Barilla and DeCecco are the two major manufacturers within Italy. It is important to note that the Italian milling industry is very dependent on exports of pasta, but also dependent on imports of high-quality durum.

The baking industry in Italy is characterized by a few firms controlling a large share of the market, with a proliferation of smaller firms and local bakeries as well. In the 880 billion lire (\$710 million) biscuit (table rolls) industry, the top 7 firms control 62 percent of production. In the 480 billion lire (\$390 million) cookies and sweets business, the top six firms control 63 percent of the market. One firm controls about 18 percent of the 500 billion lire (\$400 million) industrial breadmaking business, but the next largest firm controls little more than 1 percent.

The variable levy acts as a constraint on Italian millers, who find higher-quality imported wheat much more expensive than domestic EC wheat. Italian millers therefore limit their non-EC purchases to high quality wheats for blending with Italian wheats for the production of flours used for specialty bakery products and Christmas cakes, as well as for making pasta. In northern regions, Italian millers blend French wheat with domestic wheat for flour production. In certain southern areas, where domestic production of bread wheat is negligible, the millers utilize only French wheat because shipping to southern Italy by water from France is cheaper than trucking in Italian common wheat produced in the north of Italy. The competitiveness of French wheat coming over the Alps has forced many northern Italian growers to shift to other crops or work in other sectors of the economy. Italian millers would undoubtedly prefer to diversify their sources, particularly in light of reports that the gluten performance of grain from France is declining every year.

### **Review of Survey Results**

The Economic Research Service of the U.S. Department of Agriculture conducted a survey of the Italian wheat-importing market in the spring of 1992. The 14 interviews included 3 industry associations, 6 millers, 3 grain traders, 1 grain

trading company with extensive milling operations, and 1 pasta manufacturer with importing and milling operations.

The key issues under study in Italy were: the role of dockage and foreign matter in the decision to purchase high-quality non-EC wheat; end-use characteristics sought by the Italian market; the way Italian importers convey their preferences through contract specifications; the country supplier that best meets the requirements of Italian importers; and possible actions by U.S. suppliers to sell more wheat in Italy.

### **Importance of Dockage**

In the Italian wheat sector, U.S. wheat is widely described as "dirty." Italian traders and millers tend to group dockage and foreign matter (FM) into one category called "impurities." This category also includes shrunken and broken kernels, as well as any other material unsuitable for milling into flour.

Italian importers not only pay the wheat price for the weight of any impurities in the shipment, they also must pay insurance and freight, as well as the variable levy. Dockage is thus considered an economic factor in their purchasing decisions, rather than a technical impediment in the milling process. Dockage and FM are less important to Italian traders and millers when the protein and gluten are satisfactory, that is, when their customers are pleased with the performance quality of the product.

Dockage and FM are treated in the same manner by the traders and millers. The distinction made by the U.S. grading system is irrelevant to them, except that they must specify maximum allowable levels of dockage in the contract in order to guarantee that the shipment does not arrive even more "dirty." Traders and millers complained that when they buy the wheat in the United States there are no impurities, but when the wheat arrives, there are. They blame the U.S. transportation system for this phenomenon. When asked for proof, the persons interviewed could not substantiate this claim.

Italian traders consider dockage a problem in that they import grain on a gross weight basis. If U.S. wheat were cleaner, the variable levy would be effectively lower on the actual wheat content of the shipment. The most frequent arrangement is for millers to deduct 1 percent from the contract price for every 1 percent of impurities.

Millers could not estimate the costs of dockage in milling. The main cost of dockage is in the lower milling yield on the wheat purchased. Millers clean the wheat of all impurities before milling. The acquisition expense of the cleaning machines is a fixed cost, and labor and electricity costs are identical for cleaning wheat with different levels of dockage.

Italian millers were not enthusiastic about selling millfeed, the non-millable material such as dockage. One miller estimated the

price ratio at three to one between flour and millfeed. Others asserted that there was little difference between the nutritive value of screenings from cleaning high-quality North American wheat and the nutritive value of screenings from cleaning EC wheat. The much greater price of North American wheat due to the variable levy makes the screenings more costly than screenings from EC wheat, although the sale value is nearly identical.

#### **End-Use Characteristics Desired by Italian Import Market**

Italian traders and millers prefer to buy EC-grown wheat because imports from beyond the Community are subject to the variable levy. Therefore, potential suppliers from outside the EC must have wheat with a particular end-use characteristic in order to induce the Italian food industry to buy the much higher priced product.

The intrinsic characteristics of wheat weigh much more heavily than physical characteristics in the purchasing decisions of Italian importers. Italian millers utilize a variety of end-use tests to determine the quality of the wheat.<sup>8</sup> As the intrinsic quality of the imported wheat declines, buyers become less tolerant of poor physical quality characteristics in expensive wheat.

European Community suppliers of wheat can satisfy most of the needs of the Italian food industry, however the lack of EC wheat with high protein and high gluten quality opens the door for North American suppliers. The most important characteristics for common wheat sought by the Italian import market are gluten quality, protein quantity, stability, and favorable results from other baking tests. The popularity of hearth bread, baked without a pan, requires use of flour with high protein content and specific gluten characteristics.<sup>9</sup> Biscuits, which utilize much less non-EC wheat, require different characteristics.<sup>10</sup>

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<sup>8</sup>End-use tests conducted by Italian millers include: the alveograph "W" test, which measures the strength or tenacity of the gluten; the alveograph "P/L" test, which measures the elasticity; the farinograph, which measures both the "developing time," or period of time for gluten to reach its full strength, as well as the "stability," or period of time at which the gluten will remain at full strength; the "dough test" machine, which measures the breadmaking quality of the wheat; as well as a number of other tests.

<sup>9</sup>For bread, Italian bakers prefer flour with a "W" level of 140 to 180, a "P/L" level of 0.4 to 0.6, and a Falling Number of at least 230. This requires that non-EC wheat, used to upgrade EC wheat, must meet much higher standards, such as a "W" score of 300 to 350, a "P/L" score of 0.4 to 0.45, and a Falling Number of at least 250.

<sup>10</sup>For biscuits, Italian bakers prefer flour with "W" levels of 85 to 115, "P/L" levels of 0.4 to 0.5, and Falling Numbers of at least 150.

For durum wheat, color is probably the most important factor in determining whether an Italian trader will pay the premium for North American wheat. Those in the Italian pasta industry said that the preference for yellow color is a phenomenon occurring just over the last 20 years, as consumers buy more pasta off the supermarket shelves.

Specific quality problems cited by Italian traders, millers, and pasta makers include complaints about both intrinsic and physical characteristics (table 5). When paying a high premium for top-quality wheat, the Italian food industry expects consistently high levels of protein and gluten quality. Millers have sought arbitration a number of times recently to protest levels of protein lower than specified in their contracts with Italian traders for both U.S. and Canadian wheat.

As for physical properties, U.S. wheat is widely regarded as "dirty" in Italy. Traders and millers complain of huge clouds of dust rising up when shipments from the United States are unloaded. One trader complained about getting a shipment consisting of as much as 5 percent dust. Although this complaint could not be verified, he did admit that the wheat shipment met the standards for U.S. No. 1. The category of shrunken and broken kernels is particularly irksome for Italians, since grains considered sufficient under the U.S. test may not pass the stricter Italian definition. Although one pasta maker spoke of the danger of "black tips" attacking the endosperm of the wheat kernel, sprout damage is not common on U.S. shipments to Italy.

Table 5--Summary of quality concerns

Item	Nature of concern
Intrinsic quality (in order of importance):	
Gluten quality	"W" value too low for hearth bread Stability must be more than 15 minutes Developing time must be at least 7 minutes Moisture content must be below 12.5 percent
Protein quantity	Levels of northern spring not as high as in past
Physical quality (in order of importance):	
Shrunken and broken kernels	U.S. standards too permissive
Impurities (dockage, FM)	Lowers milling yield; too expensive to pay levy on
Moisture content	Lowers milling yield, too expensive to pay levy on



## Contract Specifications

The Italian market is driven by the consumer. The baker and pasta maker request wheat flour with certain characteristics from the miller, who makes the same request to the trader for the bulk commodity. The trader purchases wheat in order to best meet the demands of his or her clients. The performance of the supplier, therefore, can be judged only by the end user, the consumer of bread or pasta.

When importing from the United States, Italian traders buy according to U.S. grades. They usually buy No. 2. Contracts typically specify 15-percent protein content, although specifying 16 percent is not uncommon (table 6). One trader stated that he usually specifies a test weight one point above the U.S. grade, for example, 58 lbs/bu for No. 2. Limits on dockage are not usually specified in the contracts, although one major trader specifies 1.3-percent dockage. Some traders spoke of the expectation by their customers that total impurities would not exceed 2 percent, considered the standard in the Italian market.

The small quantities of U.S. desert durum that are being bought for the Italian pasta industry are purchased on an "identity preserve" basis. The pasta maker interviewed travels to three counties in California and Arizona each year to sample wheat on site. This company contracts for the wheat before the growing season. The contracts for that company specify not only the variety but the county where the wheat must be grown, as well as a maximum level of 4- to 5-percent "black tips" fungus damage.

While Italian traders import using U.S. grades, they then sell the imported wheat to millers using standard Italian contracts. These contracts do not provide detailed information on the desired characteristics. Generally, standard Italian contracts specify the type of wheat by origin, the quantity purchased, and the protein content. There is, however, an implicit understanding between the trader and the miller regarding the end-use characteristics necessary for successful fulfillment of the contract. Even though the "W" level and the stability time are not specified in the contract, the Chamber of Arbitration in Genoa can require the trader to pay a partial refund if end-use tests are not adequate. Both traders and millers stress the importance of these relationships built on trust. Often the companies have been trading together through many generations of proprietors.

There is, nevertheless, a gap in continuity in the contract specification process. The U.S. grade factors are not incorporated into the Italian contract. Therefore, if there is a problem with the quality of the wheat, it is the liability of the trader who took possession of the commodity. The chain of quality assurance is broken once the wheat is loaded in the United States, and the Italian trading system offers no further control on quality once the product has entered the country. This is one reason why many Italian traders conduct quality testing at the ports, in order to minimize disputes with their customers

Table 6--Summary of contract specifications  
by Italian importers for U.S. wheat

Factor	U.S. northern spring
Grade	1 or 2
Moisture basis	12%
Moisture maximum	13%
Protein	15%
Falling number	300
Test weight	58
Dockage (max.)	1.3%

concerning quality. One of the largest trading companies, with a dozen import elevators throughout Italy, does not conduct any testing on the commodity, relying solely on the FGIS certificate.

Some in the industry believe that the gap in continuity may actually play to the Italian trader's advantage. Traders do not show millers the documentation backing up the quality claims of the imported wheat, whether it is the import contract or the FGIS certificate. It is asserted that some traders claim to import North American wheat at 15 percent, but really specify only 14 percent or higher. Since the protein content of wheat shipments is often above the minimum level, particularly before the 1991 crop, Italian traders can reap a profit with this practice. As a result, many of the quality disputes between Italian traders and millers may not be due to the U.S. supplier failing to meet the contract specifications, but rather due to the Italian traders claiming they had purchased 15-percent protein from the United States or Canada when they actually purchased only 14 percent or better. While this scenario is plausible, its veracity could not be confirmed during the interviews.

Italian millers would be very interested in specifying end-use characteristics in the import contracts which the traders use to buy wheat from the United States. The traders regarded it as impossible to ask U.S. traders to perform baking and other flour tests on shipments for the Italian market.

#### **Comparing Third-Country Suppliers**

In many ways, there is little competition within the Italian market. The variable levy provides an enormous price advantage

for EC wheat. However, the lack of high-quality wheat production in the Community means that the United States and Canada are the only two suppliers of high-protein, high-gluten-quality common and durum wheat. Price competition comes into play mostly when the relative quality of the rival wheats is fairly similar.

Traders and millers in Italy praised Canadian wheat for guaranteeing consistently high levels of protein with adequate gluten quality. In the market for common wheat, the United States often outperforms Canada in supplying wheat with superior protein and gluten quality. However, the inconsistent quality of shipments of U.S. wheat with respect to protein quantity and gluten quality makes it difficult for Italian millers to rely on U.S. wheat as much as they would like.

Canadian western red spring is considered to be cleaner and of more consistent quality than U.S. northern spring, and the main Italian company importing Canadian wheat seems to be able to purchase wheat from Canada at a price that allows them to undercut, or at least compete favorably, with U.S. wheat.

As regards the cleanliness of wheat, Canada generally outperforms the United States. Italian data (table 2) show the total level of impurities in U.S. common wheat to be 3.06 percent during the first 6 months of 1990, as opposed to 2.48 percent for CWRS.<sup>11</sup> During the period from July 1989 to June 1990, the total level of impurities in U.S. wheat was 3.39 percent. On wheat costing about \$400 per ton, that extra half-percent of impurities--be it dockage, FM, or some other substance undesirable for flour--ends up costing about \$2 per ton.

The quality of the 1991 northern spring crop was considered to be very poor, and many in the Italian wheat sector urged greater U.S. attention to this issue. While most of those interviewed recognized the weather factors involved in the 1991 crop, some millers considered the problem to be indicative of a lack of attention paid to developing new seed varieties.

In the durum market, Canadian western amber durum is considered of superior quality to North Dakota durum, particularly on the basis of color. In Italy, CWAD is used for pasta made with eggs, or for filled pasta such as tortellini. CWAD meets the needs of a high protein level, with a lower gluten strength, that is, with a "W" near 150, as opposed to a "W" of 300 needed for spaghetti. The gluten of U.S. hard amber durum (HAD) is considered too elastic to use in filled pasta.<sup>12</sup> The color must register at least a "B" rating on the Minolta yellow color index. Currently,

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<sup>11</sup>These figures are ERS estimates on the basis of Italian import data.

<sup>12</sup>Filled pasta, such as ravioli or tortellini, requires wheat with low gluten strength (the "W" test), but which is not too elastic (the "P/L" test). Filled pasta made with wheat that is too elastic will break while cooking.

CWAD achieves the higher rating of "C" on the index used by the Italian pasta industry.

Unless the quality of non-desert durum from the United States improves to the level of Canadian durum, and matches the specific characteristics that Italian pasta makers are seeking, the limited interest on the part of Italian buyers will likely continue. The desert durum is a controlled-variety specialty product valued for certain particular characteristics, such as its low moisture content. The segmented markets for imported durum in Italy are at present essentially oligopolistic and devoid of real competition.

In the common wheat market, U.S. northern spring wheat does compete somewhat with Canadian western red spring. But the two wheats are viewed as suitable for distinct purposes by Italian millers and bakers. Northern spring is preferred for the large puffy bread popular in northern Italy, because the gluten is more adaptable than CWRS, whose gluten is often too rigid. Other aspects of northern spring which Italian millers and bakers praise are its stability of more than 15 minutes, as well as its gluten strength and its high protein. A number of millers cited the lack of elasticity as one weakness in northern spring wheat. Elasticity can be particularly important since some bread doughs must rise for as long as 20 hours.

Canadian western red spring is used in more dense breads, and for high-protein flour used to upgrade mixtures with EC flours. CWRS is seen as cleaner, with fewer shrunken and broken kernels than northern spring. One miller insisted that a Canadian variety called Utility wheat, with its high stability and lower protein, is perfect for certain end uses, such as making biscuits and traditional Italian cakes. The inconsistent quality of NS has led many millers to buy large volumes of CWRS and Canadian utility wheat in response to the variability of U.S. NS and DNS.

### **Survey Implications**

Italian traders and millers would be willing to buy more U.S. wheat if it were cleaner. Since it is very costly to pay the variable levy on dockage and FM, the net price of U.S. wheat would be lower if the wheat were cleaner with no increase in U.S. fob prices. One miller estimated that he would pay 2 percent more if the United States could provide wheat with only 1 percent total impurities (dockage, FM, etc.). This is understandable, since it appears that, according to the Italian definition of "impurities," U.S. wheat is arriving at about 3 percent impurities (Canadian wheat was about 2.5 percent). That extra 2 percent of impurities above the desired level currently in U.S. shipments costs the miller about \$8 per ton, or about 2 percent of the purchase price (table 7).<sup>13</sup>

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<sup>13</sup>As stated before, the half-percent difference between the cleanliness of U.S. and Canadian wheat costs the Italian miller about \$2 per ton.

Table 7--Calculation of premium to miller for cleaner wheat 1/

Item	Unit	Current (1)	Cleaner (2)
(A) Price of U.S. wheat	Dol./ton	400	408
(B) Level of impurities 2/	Percent	3.06	1.00
(C) Value lost due to impurities [A*B] 3/	Dol./ton	12.24	4.00
(D) Value of wheat suitable for flour [A-C] 3/	Dol./ton	387.76	396.00
(E) Increase in price for cleaner wheat [(A2-A1)/A1]	Percent		2.00
(F) Gain in value of wheat suitable for flour [(D2-D1)/D1]	Percent		2.13

1/ This scenario is based on an Italian miller's comment that he would pay 2 percent for a guaranteed 1 percent impurities.

2/ The current figure is based on data from the Italian Grain Traders Association for July to December 1990.

3/ On basis of original price, \$400/ton.

Eight of the 11 traders and millers interviewed said they would be willing to pay a premium for cleaner U.S. wheat. The level of premium they were willing to pay ranged from \$5 to \$10 per ton, with a strong consensus at \$8 per ton. The overall estimate of additional U.S. exports due to cleaner wheat amounted to an extra 150,000-200,000 tons of northern spring.<sup>14</sup>

While cleaner wheat was desired by all of those interviewed, they stressed that maintaining and improving the intrinsic quality of U.S. wheat would be a surer way to capture more of the Italian market. During the ERS interviews, many of the complaints heard about the quality of U.S. grain were due to the poor or at least inconsistent quality of the 1991 northern spring crop. Better weather usually yields a U.S. crop with characteristics more satisfying to the Italian miller. However, a number of traders and millers considered the quality of U.S. wheat to be in a long-term decline and expressed concern that northern spring no longer performs as well as in the past. One miller stressed development of seed varieties with end-use characteristics in mind. He said that better seed varieties could minimize the variability of protein content and gluten quality in U.S. wheat, as well as lower the prevalence of shrunken and broken kernels.

<sup>14</sup>Two-thirds of this figure came from interviews with one trader and two of his client millers, who have reduced their use of northern spring due to the variability in protein content and gluten quality, as well as cleanliness issues such as dockage, foreign material, and shrunken and broken kernels.

Cooperation with the Italian trading community could also promote renewed confidence in the quality of U.S. wheat. The Arbitration Chamber in Genoa recently requested the U.S. Federal Grain Inspection Service to grade a sample of U.S. wheat sent from Italy in order to compare Italian definitions of shrunken and broken kernels with U.S. standards. Harmonization of these definitions may not be possible, but continued cooperation to help Italian importers better understand U.S. standards would be a step toward addressing their concerns.

Competition from Italian production of durum wheat, under the protection of the variable levy, has likely reduced U.S. sales more than the superiority of the Canadian product. However, the United States has not sold a higher volume of durum wheat to Italy than Canada in two consecutive years since the 1960's. Even from 1977 to 1981, when the United States on average sold 260,000 tons of durum to Italy, Canada sold more than double that amount.

The United States has generally maintained its percentage share of the Italian import market for non-EC durum, but that market has shrunk considerably over the last decade. In order to regain higher export volumes (likely at the expense of Canada), the United States must develop durum wheat with a better yellow or amber color. The protein and gluten characteristics of U.S. HAD are considered adequate by the Italian market for producing spaghetti, but the unsatisfying color prevents any sales to Italy at this time. To compete with CWAD in the market for egg pasta and filled pasta products, U.S. producers of durum would have to develop a wheat with high protein content, but low gluten elasticity, as well as the suitable yellow color.

Another idea would be to promote matchmaking of U.S. producer with Italian consumer, either through trade missions or an informational campaign. Large-scale Italian pastamakers and bakery concerns are willing to travel to the United States to find wheat with the particular characteristics they are seeking. Grain trading in Italy relies heavily on relationships built on trust. Putting the buyer for an Italian bakery giant in touch with U.S. suppliers of high-quality wheat could lead to profitable long-term business relationships. While this approach may increase transaction costs due to varietal control and other requirements, it could also lead to further sales and an enhanced U.S. share of Italian imports. The Italian market is willing to pay for wheat that performs, even at high cost. Finding the wheat and getting it delivered is the hard part.

#### **Future Prospects for Export Sales to Italy**

The CAP reform compromise could represent a good opportunity for U.S. exporters to increase sales of high-quality wheat to Italy. The EC's policy prices for grains will drop significantly over the 3-year implementation period starting in July 1993. The Council of Ministers has set the "Community preference," that is, the difference between the target and threshold prices, at 45 ECU

(\$65)<sup>15</sup> per ton, resulting in a threshold price of 155 ECU (\$223) per ton for all grains in 1995/96. For common wheat, this represents a decrease of 33 percent (about \$108) in the threshold price by July 1995 from current levels. For durum wheat, the cut in the threshold price will be even more pronounced, since durum has had much higher intervention and threshold prices in the period before CAP reform. The threshold price for durum will fall 44 percent (about \$173) under CAP reform.

Given the import protection maintained under CAP reform, and the resulting high price at which U.S. and Canadian wheat can enter the Italian market, North American wheat is used only for specialty purposes. It is possible that the reduction in the threshold price, making U.S. and Canadian wheat cheaper in the Italian market, could increase the size of that specialty market. Whether the United States or Canada gets the additional sales will be a function of which supplier meets the highly specific demands of the Italian importers.

A recent EC Directive permits the introduction into flour of "natural" vital wheat gluten. This law will eventually undo an Italian ban on the practice, since Italy must harmonize with EC rules. Vital gluten is a byproduct of the production of starch, which has a variety of industrial uses, among them the production of ethanol. CAP reform rules allowing the cultivation of crops for industrial purposes on set-aside land could lead to a large surplus of vital wheat gluten being available within the EC. If the EC continues to encourage the domestic ethanol industry, there could be significant quantities of excess vital wheat gluten. It is possible that the EC could overcome its lack of high-quality wheat production by utilizing vital wheat gluten in order to upgrade the quality of its flour. The effect on U.S. exports of high-protein wheat is uncertain, since there is no guarantee that wheat flour fortified with vital gluten will have the same performance characteristics sought by the discriminating Italian market. One alternative effect could be a loss of U.S. exports to third-country markets if the EC could offer high-protein flour with export subsidies. Some groups in the United States are already calling for tariffs on subsidized EC exports of vital wheat gluten, which go mainly to the United States and to third-country markets such as North Africa.

### Conclusions

The Italian import market for wheat is one that shows that high quality characteristics can overcome protectionism such as the EC's variable levy. The high protein content in North American wheat is attractive to Italian bakers, who produce a large quantity of hearth bread. The famous Italian pasta industry has favored Canadian durum for the last decade and a half, while the quality of EC durum is improving, albeit slowly. U.S. producers

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<sup>15</sup>Using a February 1993 daily exchange rate of \$1.20 per ECU, with a "switchover" coefficient of 1.2.

of desert durum have found a small niche market supplying wheat for pastas served in cold salads.

Canadian common wheat has generally been considered to be of more consistent quality than U.S. common wheat, which varies considerably from one lot to the next. U.S. northern spring wheat is still considered the standard for excellent wheat, although this could change if U.S. quality continues on the downward trend as perceived by Italian millers and traders.

Since the import market for wheat in Italy is truly for the highest quality wheat not produced in the European Community, it is unlikely that the volume of imports from North America will decline significantly. Quality is in fact the preeminent factor which determines purchases of imported grain in the Italian market. Traders and millers will continue to seek out the varieties that perform best for the diverse and highly specific end uses in the sophisticated Italian market.

The Italian market for non-EC imports is driven by quality considerations. U.S. exporters have had success in the past in providing wheat with intrinsic characteristics meeting the exacting standards of Italian millers. Italians will buy only U.S. wheat that is of a significantly higher quality than that available in the EC, since medium-quality EC wheat is available at a much lower price. Overall, the quality of EC wheat is improving, and Canadian wheat suits certain purposes better than U.S. wheat. However, the United States still sells significant quantities of northern spring and some desert durum, which meet the Italian requirements better than any other types of wheat in the world. Given the information developed in this study, these markets for U.S. exports seem relatively secure.



## References

- Agra Europe, Ltd. CAP Monitor. London.
- Camaret, Denis. Perspectives Agricoles. Institut Technique des Cereales et des Fourrages. Paris. April 1991.
- Commission of the European Communities. Agricultural Situation in the Community. Office for Official Publications of the European Communities. Luxembourg. Various years.
- . Agricultural Markets. Office for Official Publications of the European Communities. Luxembourg. Various issues.
- DRI/McGraw-Hill. World Market Reports. Lexington, MA. June 1992.
- Home Grown Cereals Authority. Cereals Statistics. London. 1991.
- ISMEA. Filiera Frumento. Rome. December 1991.
- ITALMOPA. "Relazione del Presidente." Associazione degli Industriali Mugnai e Pastai d'Italia. 1992.
- U.S. Department of Agriculture, Foreign Agricultural Service. Grain and Feed Annual. Rome. Various years.
- U.S. Wheat Associates. Foreign Market Development Report: Italy. Washington, DC. 1988.
- Western Europe Agriculture and Trade Report. U.S. Department of Agriculture, Economic Research Service. Various years.
- World Grain. "Focus on Italy." February 1988.
- . "Italian grain and grain processing." March 1989.

## Glossary

**Blending:** The systematic combining of two or more lots or kinds of grains to obtain a uniform mixture to meet a desired specification.

**C & f:** Cost and freight to the designated delivery point, paid by the seller.

**C.i.f.:** Cost, insurance, and freight to the designated delivery point, paid by the seller.

**Commodity Credit Corporation (CCC):** An agency of the U.S. Department of Agriculture created in 1933 to carry out loan and storage operations as a means of supporting prices above the level that would have prevailed in a free market.

**Cu-Sum:** A set of rules established by FGIS, that exporters must follow when loading grain on ocean vessels. The rules control variability among sublots blended to meet contract grade limits.

**Damaged grain:** In U.S. grading standards, the term damage refers primarily to biological deterioration associated with discoloration. Physical damage (such as cut or broken kernels) is not included in U.S. grades but is included in the standards of some other countries.

**Defects:** Computed total amount of damaged kernels, foreign material, and shrunken and broken kernels.

**Dockage:** Nongrain material that can be readily removed by accepted screening devices.

**Durum wheat:** Very hard, high-protein wheat used in the production of semolina flour for pasta products.

**Export Credit Guarantee Program (GSM-102):** U.S. agricultural export promotion program that guarantees repayment of private, short-term credit for up to 3 years.

**Export Enhancement Program (EEP):** Program to help U.S. exporters meet competitors' prices in subsidized markets: Exporters are awarded generic certificates that are redeemable for CCC-owned commodities, enabling them to sell certain commodities to specified countries at prices below the U.S. market price.

**Extraction rate:** The fraction of the wheat kernel that is converted into flour during the milling process.

**Falling number test:** A test used to measure sprout damage in wheat.

**F.a.s.:** Free alongside ship specifies that the seller delivers goods to the port elevator or dock at a specified location and the buyer pays for loading the ship and ocean freight.

**Federal Grain Inspection Service (FGIS):** An agency of the U.S. Department of Agriculture that establishes grain standards and develops the technology to measure the factors contained in such standards. This agency also develops and publishes sampling and inspection procedures, evaluates and approves equipment, monitors inspection accuracy, and oversees mandatory export inspection of grain by agency or FGIS-licensed inspectors.

**F.o.b.:** Free on board specifies that the seller loads the ship or other conveyance at the specified delivery point with the buyer paying freight charges.

**Foreign material:** Nonwheat material of similar size and weight to wheat kernels.

**Gluten:** A tenacious, elastic protein substance found especially in wheat flour that gives cohesiveness to dough.

**Grade:** A number or letter designation assigned to grain based on an established set of criteria.

**Grade factor or grade determining factor:** Those characteristics of grain used to determine the numerical grade. The grade factor is based on quantitative limits (either maximums or minimums) placed on each factor for each grade.

**Grain grades and standards:** Specific standards of grain quality established to maintain uniformity of grains from different lots and permit the purchase of grain without the need for visual inspection and testing by the buyer.

**Hard Red Spring wheat:** Spring seeded; includes the following three subclasses: dark northern, northern, or red: This wheat is high in protein and has a vitreous endosperm, is used primarily to produce bread flour and is produced in the upper Great Plains.

**Hard Red Winter wheat:** Fall seeded; This wheat may be either dark hard, hard, or yellow hard, medium to high in protein, a vitreous endosperm, and used primarily to produce bread flour. It is produced in the lower Great Plains.

**Hard wheat:** A generic term applied to wheat with a vitreous endosperm suitable for making bread flour or semolina; yields coarse, gritty flour that is free-flowing and easily sifted; and flour consists primarily of regularly shaped particles of whole endosperm.

**Impurities:** Any nongrain material contained within a shipment that could hinder the processing of a grain or detract from its end value.

**Intrinsic value or end-use value:** Characteristics critical to the end-use of grain. These are nonvisual and can only be determined by analytical tests. For example, the intrinsic quality of wheat is determined by characteristics such as protein, ash, and gluten content.

**Moisture content:** The amount of water in grain; measured by the weight of water as a percentage of the total weight of the grain including water (wet basis) or total weight of the dry matter excluding water (dry basis).

**Nongrade determining factor:** Factors that influence the quality of grain but are not taken into account in the grading of grain. These factors must be reported as information whenever an official inspection is made.

**Nonmillable material:** All material that is not wheat, includes shrunken and broken kernels.

**Physical quality:** Grain characteristics associated with the outward appearance of the grain kernel, including kernel size, shape, color, moisture, damage, and density.

**Premiums:** Prices that exceed the base price offered for grains with higher quality characteristics than specified. Generally calculated for factors that increase the value of the grain in market channels.

**Public Law 480 (PL-480):** Common name for the Agricultural Trade Development Assistance Act of 1954, which seeks to expand foreign markets for U.S. agricultural products, combat hunger, and encourage economic development in developing countries.

**Sanitary quality:** Grain characteristics associated with cleanliness. They include the presence of foreign material that detracts from the overall value and appearance of the grain, including the presence of dust, broken grain, rodent excreta, insects, residues, fungal infection, and nonmillable matter.

**Screenings:** The material removed from grain by means of mechanical sizing devices; generally include broken grain as well as nongrain material removed

on the basis of density or particle size with mechanical cleaners.

**Semolina:** A coarse separation of endosperm extracted from Durum wheat to make pasta.

**Shrunken and broken kernels:** All matter that passes through a 0.064 inch by 3/8 inch oblong-hole sieve.

**Soft wheat:** A general term describing wheat with a chalky endosperm suitable for making pastry flour; yields a very fine flour consisting of irregularly shaped fragments of endosperm cells that adhere and sift with difficulty.

**Spring wheat:** A general term for wheat that is grown in the spring and harvested in the summer or fall; It has a relatively high protein content and is used in bread flours.

**Test weight:** Weight per unit volume as measured in pounds per bushel as defined in the United States. Determined by weighing the quantity of grain required to fill a 1-quart container. The international equivalent measure is kilograms per hectoliter (conversion factor 0.77).

**Uniformity:** Conformity within and between shipments for quality attributes; such as physical, milling, and baking performances.

**Wheat middlings:** Fine particles of the bran and the wheat kernel. Normally used for livestock feed.

**White wheat:** Fall or spring seeded; it includes four subclasses: hard, soft, club, western: It is soft or hard and low in protein and is used mainly for pastry flours and oriental noodles.

**Winter wheat:** A general category describing wheats that are sown in the fall, lie dormant in the winter, and are harvested the following spring or summer.

Appendix table 1--Supply and use of total wheat in Italy

Year	Area	Wheat	Production	Imports	Exports	Consumption	Ending stocks	Feed
	harvested	yield						
	1,000 ha	t/ha	----- 1,000 tons -----					
1960	4,553	1.49	6,794	2,531	68	9,117	1,000	207
1961	4,345	1.91	8,301	1,059	79	9,221	1,060	175
1962	4,556	2.08	9,497	456	176	9,302	1,535	177
1963	4,394	1.85	8,127	702	213	9,400	751	132
1964	4,408	1.95	8,586	805	268	9,474	400	127
1965	4,288	2.28	9,776	1,077	406	9,647	1,200	132
1966	4,274	2.20	9,400	1,012	765	9,687	1,160	103
1967	4,012	2.39	9,596	941	217	10,384	1,096	193
1968	4,280	2.26	9,655	1,589	315	10,345	1,680	264
1969	4,218	2.27	9,585	1,268	733	10,515	1,285	300
1970	4,138	2.33	9,630	1,446	610	10,696	1,055	320
1971	3,952	2.55	10,070	1,485	636	10,866	1,108	200
1972	3,804	2.48	9,421	1,244	709	10,756	308	200
1973	3,590	2.48	8,921	3,159	248	10,770	1,370	340
1974	3,713	2.61	9,697	1,552	559	10,840	1,220	361
1975	3,545	2.71	9,610	2,081	798	10,649	1,464	100
1976	3,544	2.57	9,106	2,274	798	10,761	1,285	250
1977	2,786	2.23	6,218	4,402	875	10,230	800	100
1978	3,472	2.65	9,191	2,527	1,116	10,502	900	100
1979	3,452	2.60	8,980	3,395	1,679	10,696	900	100
1980	3,405	2.69	9,150	3,028	1,620	10,658	800	100
1981	3,258	2.71	8,828	3,528	2,099	10,307	750	100
1982	3,326	2.68	8,903	2,379	1,914	9,418	700	300
1983	3,328	2.56	8,514	3,200	1,400	10,114	900	950
1984	3,274	3.07	10,057	4,475	2,087	11,885	1,460	1,900
1985	3,034	2.79	8,461	5,040	2,534	11,027	1,400	1,700
1986	3,136	2.90	9,102	4,598	1,538	11,112	2,450	1,900
1987	3,087	3.04	9,381	3,976	2,208	10,949	2,650	1,600
1988	2,876	2.76	7,952	4,931	3,244	10,539	1,750	1,400
1989	2,943	2.52	7,413	4,889	2,529	10,223	1,300	1,400
1990	2,773	2.92	8,108	5,500	2,700	10,558	1,650	1,600
1991	2,678	3.47	9,289	7,300	3,600	11,739	2,900	1,500
1992	2,633	3.30	8,700	6,685	3,600	11,735	2,950	1,500

Source: USDA, TimeSeries database.

Appendix table 2--Italian imports of common wheat from non-EC countries

July/June years	U.S. 1/ CWRS	Canada	Argentina TP	Australia	Saudi Arabia 2/	Total 3/
				<u>1,000 tons</u>		
1968/69	50	254	133	0	NA	437
1969/70	0	317	87	13	NA	417
1970/71	177	186	72	28	NA	463
1971/72	72	262	53	0	NA	388
1972/73	250	282	37	0	NA	568
1973/74	243	371	3	0	NA	616
1974/75	28	62	176	0	NA	267
1975/76	42	165	315	33	NA	555
1976/77	60	189	393	0	NA	642
1977/78	197	27	86	0	NA	310
1978/79	338	39	141	0	NA	518
1979/80	382	63	0	0	NA	445
1980/81	444	239	6	23	NA	712
1981/82	348	92	14	0	NA	455
1982/83	288	98	50	0	NA	436
1983/84	488	238	45	0	NA	771
1984/85	356	58	0	0	NA	414
1985/86	340	112	0	0	NA	452
1986/87	401	154	0	0	30	585
1987/88	329	208	7	0	NA	544
1988/89	323	195	0	0	NA	518
1989/90	330	202	0	0	21	553
1990/91	354	213	0	0	16	583
1991/92	365	204	0	0	31	599
Avg.1968-92	249	173	74	4	NA	510
Avg.1970-80	179	164	128	6	NA	477
Avg.1980-90	365	160	12	2	NA	544

1/ Includes HRS, HRW, and white wheat.

2/ These are calendar years 1989-91.

3/ May not include minor quantities from other suppliers.

NA=not available.

Sources: USDA, Canadian Wheat Board, International Wheat Council, Italian Grain Traders Association.

Appendix table 3: Italian imports of durum wheat from non-EC countries

July/June years	U.S. HAD	Canada WAD	Argentina CT	Total 1/
			1,000 tons	
1968/69	375	160	309	844
1969/70	195	92	318	605
1970/71	212	136	448	795
1971/72	15	236	296	547
1972/73	32	85	334	451
1973/74	125	309	360	794
1974/75	313	515	25	853
1975/76	101	382	27	510
1976/77	97	163	208	468
1977/78	343	811	179	1,333
1978/79	144	354	0	498
1979/80	331	576	32	939
1980/81	226	526	109	861
1981/82	475	423	5	902
1982/83	145	525	0	670
1983/84	86	504	21	611
1984/85	15	162	11	188
1985/86	27	255	0	282
1986/87	116	480	0	596
1987/88	54	232	0	286
1988/89	36	214	0	250
1989/90	164	155	0	319
1990/91	45	107	0	152
1991/92	75	106	0	181
Avg.1968-92	165	332	122	581
Avg.1970-80	171	357	191	719
Avg.1980-90	134	348	15	497

1/ May not include minor quantities from other suppliers.

Sources: USDA, Canadian Wheat Board, International Wheat Council, Italian Grain Traders Association.

Appendix table 4--Quality and quantity of U.S. hard red spring wheat exports to Italy, 1984-91 1/

Class	1984	1985	1986	1987	1988	1989	1990	1991
	<u>1,000 metric tons</u>							
Total shipped	455.5	127.6	242.1	224.1	255.2	166.9	160.1	109.6
Avg. size	11.4	9.1	9.7	11.8	8.0	11.9	8.0	11.0
Test weight:	<u>Pounds per bushel</u>							
Mean	60.30	59.58	58.56	58.91	59.24	59.73	60.71	60.57
Std. dev.	0.65	0.46	1.14	0.44	0.45	0.58	0.53	0.98
High	61.30	60.10	60.54	59.51	60.20	61.06	61.66	61.30
Low	59.00	58.40	57.30	58.15	58.43	59.14	59.98	58.58
Range	2.30	1.70	3.24	1.36	1.77	1.92	1.68	2.72
Dockage:	<u>Percent</u>							
Mean	0.90	0.74	1.22	0.98	0.74	0.70	0.66	0.78
Std. dev.	0.20	0.09	0.40	0.19	0.15	0.11	0.09	0.27
High	1.90	0.92	2.55	1.43	1.03	0.89	0.88	1.27
Low	0.61	0.63	0.57	0.75	0.50	0.46	0.50	0.53
Range	1.29	0.29	1.98	0.68	0.53	0.43	0.38	0.74
Foreign material:								
Mean	0.47	0.38	0.47	0.35	0.35	0.30	0.30	0.24
Std. dev.	0.17	0.19	0.13	0.09	0.14	0.14	0.09	0.05
High	0.70	0.80	0.70	0.50	0.60	0.60	0.40	0.30
Low	0.10	0.20	0.30	0.20	0.10	0.10	0.10	0.20
Range	0.60	0.60	0.40	0.30	0.50	0.50	0.30	0.10
Moisture content:								
Mean	11.77	12.63	12.94	12.44	12.30	11.82	11.89	12.05
Std. dev.	0.36	0.24	0.23	0.20	0.40	0.30	0.34	0.26
High	12.50	13.00	13.40	12.80	12.80	12.40	12.70	12.40
Low	10.90	12.20	12.60	12.10	11.50	11.20	11.40	11.70
Range	1.60	0.80	0.80	0.70	1.30	1.20	1.30	0.70
Protein content:								
Mean	NA	13.84	13.94	13.99	14.26	15.09	14.91	14.92
Std. dev.	NA	0.45	0.30	0.23	0.62	0.58	0.64	0.53
High	NA	14.10	14.20	14.10	15.50	16.00	16.00	16.00
Low	NA	13.00	13.00	13.00	14.00	14.00	14.00	14.10
Range	NA	1.10	1.20	1.10	1.50	2.00	2.00	1.90

NA= Not available.

1/ These data do not necessarily represent all shipments during the period.

Source: USDA, Federal Grain Inspection Service.



Appendix table 5--Quality and quantity of U.S. durum wheat exports to Italy, 1984-91 1/

Class	1984	1985	1986	1987	1988	1989	1990	1991
				<u>1,000 metric tons</u>				
Total shipped	88.5	0.0	24.6	38.7	25.5	NA	22.9	20.0
Avg. size	12.6	0.0	6.1	19.4	41.3	NA	0.0	0.0
Test weight:				<u>Pounds per bushel</u>				
Mean	61.96	----	60.41	----	----	NA	----	----
Std. dev.	0.80	----	0.91	----	----	NA	----	----
High	62.80	----	61.57	----	----	63.03	----	----
Low	60.60	----	59.18	----	----	59.47	----	----
Range	2.20	----	2.39	----	----	3.56	----	----
Dockage:				<u>Percent</u>				
Mean	1.00	----	1.03	----	----	NA	----	----
Std. dev.	0.27	----	0.28	----	----	NA	----	----
High	1.48	----	1.32	----	----	0.84	----	----
Low	0.81	----	0.58	----	----	0.65	----	----
Range	0.67	----	0.74	----	----	0.19	----	----
Foreign material:								
Mean	0.22	----	0.52	----	----	NA	----	----
Std. dev.	0.10	----	0.46	----	----	NA	----	----
High	0.40	----	0.50	----	----	0.40	----	----
Low	0.10	----	0.10	----	----	0.20	----	----
Range	0.30	----	0.40	----	----	0.20	----	----
Moisture content:								
Mean	8.74	----	12.90	----	----	NA	----	----
Std. dev.	2.01	----	0.13	----	----	NA	----	----
High	12.20	----	13.00	----	----	12.40	----	----
Low	7.60	----	12.70	----	----	7.00	----	----
Range	4.60	----	0.30	----	----	5.40	----	----

----= Three or fewer shipments in calendar year.

NA= not available.

1/ These data do not necessarily represent all shipments during the period.

Source: USDA, Federal Grain Inspection Service.

