

PN-ABQ-411

1993-12-12

**Private Farmer Price Discovery in a Transition Economy:
Sealed Bid Auctions in Romania**

Funded by

United States Agency for International Development (USAID)

Grant No. 180-0024-G-00-2227-00

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December 1993

Private Farmer Price Discovery in a Transition Economy: Sealed Bid Auctions in Romania

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Introduction

Newly privatized farmers in transition economies face a number of hurdles in establishing economically viable farm enterprises. Many of these hurdles are created by factors beyond the farm gate and largely beyond the control of the individual farm operator. Often lacking in early stages of transition are availability and adequate functioning of input, output, and service markets and security to land title. This is the case today for many newly privatized Romanian farmers.

A commodity import program conducted by the International Fertilizer Development Center (IFDC) under auspices of the United States Agency for International Development (USAID) is addressing each of these issues. Ohio State University is providing research assistance. The commodity import program provides limited quantities of hog and poultry protein feed supplement sold primarily through regional sealed bid auctions to private farmers only. The feed supplement is donated by the U.S. Government to the Romanian Government; the sealed bid auctions provide the price discovery experience directly to farmers; additional product sales through intermediaries help develop private input markets; and proceeds of the auctions are used to partially fund land titling operations.

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The Commodity Import Program

The commodity import program is an effort to assist the privatization of Romania's agricultural sector. Fact finding surveys in early 1992 indicated a severe protein shortage for animal feed in Romania. Because of this shortage, soybean oil meal was chosen as the means of transferring aid to the Romanian private swine and poultry farmers while introducing them to free market concepts. The U.S. Government initially granted 17,000 tons of high protein feed supplement to the Romanian Government for the first two phases (auctions) of the program. The proceeds from the auctions are to be used for support of a cadastral survey and land titling. A third feed shipment of an additional 10,000 tons is proposed for the spring of 1994 with the proceeds to be used for establishment of a network of small independent farm input supply firms.

The first shipment of 10,600 tons of swine feed supplement arrived on June 25, 1993, and eight auctions were held between June 19-29, 1993. A second shipment of both swine and poultry feed supplement arrived in Romania on October 15. Four auctions for this second shipment were held between September 28 and October 7, 1993.

The overall objectives of the program are:

1. To support Government of Romania's emergency relief program of importing protein-based animal feed supplement for private swine and poultry producers.
2. To provide exposure to free market procedures by offering feed supplement for sale at sealed bid auctions to private farmers.
3. To provide assistance in market planning for agricultural inputs and management of environmental waste from swine and poultry production facilities.
4. To generate local funds for local cadastral equipment purchases and through assistance in programming and fund administration to facilitate early issuing of land titles.

In this paper preliminary results are reported from the first auctions (June 1993) as related to objective two. First, private farm eligibility for program participation is defined. Second, procedural steps to assure conformity with project objectives are discussed. This is followed by a description of the auction process and a preliminary analysis of the price discovery results for the June auctions.

Bidder Eligibility

Input, output, and service networks for the large state farms already exist but do not adequately serve the private sector. Thus, the program was limited to the newly privatized farms. This necessitated developing criteria for private farmer exclusivity. Four categories of private farmers were recognized. Three of these categories have legal status: commercial societies registered under law 31 (1990); agricultural companies registered under law 36 (1991); and agricultural associations with a written agreement. The fourth category is private individuals.

Commercial societies and agricultural companies are large farms, formerly cooperatives, that have changed ownership and management structure but not necessarily size of operation. Agricultural associations are groups of individual farmers (usually about 10) that conduct many operations jointly under a formal written agreement. To participate in the bidding a farmer must present written confirmation of status within one of the above agricultural entities. For those with legal status, registration or similar documents were required. For others, a letter from the village mayor attesting to the private nature of the farm operation was required.

Procedural Steps

A number of procedural steps were followed to assure that (1) only private farmers participated, (2) the financial integrity of the cadastral survey fund was maintained,

(3) program information was widely disseminated, (4) broad and equal participation was available, (5) IFDC logistics were not overextended, and (6) a price discovery experience was obtained by private farmers. These procedures are discussed below.

Private farmer exclusivity was maintained by enforcing the bidder eligibility criteria described above.

Financial integrity was maintained by requiring all participants (with the exception of single lot bidders) to acquire a bank guarantee or letter of credit prior to the auction. They were then allowed to present bids, which in total were not greater than the bank guarantee. This assured that every bid was financially covered and that proceeds from successful bids were transferred automatically to the cadastral fund. In addition, a floor price was established for the bids to maintain a basic revenue for the cadastral survey. The floor price was calculated at 80% of an estimated import parity price, the estimated cost for a private business to import the product into Romania less duties and taxes.

Information on the program was disseminated widely through a number of outlets including: posters at banks, regional ministries of agriculture, universities, and agricultural fairs; media including national and regional newspapers, television, and radio; personal correspondence; regional seminars; and through IFDC attendance at agricultural functions and fairs.

Broad participation was facilitated by a number of means including the information dissemination mentioned above; pre-auction regional seminars held in eight regions of the country; regional auctions held at the same regional sites; an upper purchase limit of 500 tons for any single farm; and elimination of the credit guarantee for farms submitting only one single lot bid. However, the imposition of a minimum bid level of 10 tons and the product delivery at one point, the eastern port of Constanța, were negative factors affecting participation. For example, many farms had insufficient animal units to utilize this minimum quantity of feed, while the need by some to transport the product long distances from the delivery port discouraged participation or lowered the potential bidding price. The minimum

bid and single point delivery were dictated by the limited logistical capabilities of the program and the lack of a private input supply network.

The price discovery experience was enhanced by holding two separate auctions at each of eight regional sites on consecutive days (excepting weekends) and making the results of each auction immediately available to bidders and the public. Pre-auction seminars, held one month in advance of the auctions, enhanced the process by allowing potential bidders to become acquainted with the process and to prepare adequately for the auctions.

The Price Discovery Process

Pre-Auction Seminars

Pre-auction seminars were held in May (and August-September for the second feed supplement shipment) to inform farmers about the auction procedures, requirements for participation in the auctions, and the nutritional value of the feed supplement. The locations for the seminars and auctions were selected on the basis of regional swine population concentrations owned by private farmers and were distributed throughout the country to facilitate farmer attendance (Figure 1).

At seminar registration each farmer was assigned a four-digit identification number that specified region and farm. This number followed each participant throughout the seminar, questionnaire, and auction procedures.

The first portion of the seminar was devoted to explaining requirements for participation in the auctions: certification of private farm ownership, financial guaranty from an accredited bank, and a signed contract. The procedures for obtaining bank documents were discussed and, when available, local bank representatives answered questions about the procedures. The invitation to bid contract was reviewed. This contract covers the auction rules, details of title transfer, product delivery, and agreement to participate in a product use monitoring program.

A sample auction bid procedure was shown to acquaint potential bidders with the auction process, potential outcomes, such as tie bids, the processes for resolving these situations. The first part of the seminar was concluded with each farmer being asked to complete a four-page questionnaire about his farm operation. The second portion of the seminar involved technical aspects of feed supplement use and explanation of a product use monitoring program.

The May seminars were well attended with a total of 641 individuals participating, including farmers, bankers, reporters, and governmental officials. Farmers accounted for 437 of 68% of the participants (Table 1).

Table 1. May 1993 Seminar Attendance by Location of Seminar

Location	Date	Farmers	Observers	Total
Giurgiu	May 17	43	25	68
Bucharest	May 19	65	39	104
Craiova	May 21	21	44	65
Constanța	May 21	83	13	96
Arad	May 24	44	12	56
Braila	May 24	34	14	48
Cluj-Napoca	May 26	85	27	112
Iasi	May 26	50	24	74
Alexandria ^a	June 5	12	6	18
Total		437	204	641

a. Added at the request of a senator from the National Peasants Party.

General Auction Conditions and Rules

Auctions were held at the same locations as the seminars. The allotment of feed supplement per site was based largely upon farmer participation at the seminars and the swine population represented in the region. The questionnaire asked whether the farmer

planned to participate in the auctions and if so how many tons he would like to purchase. This expressed need and the animal populations at each location helped in making allocation of feed supplement to be offered at each auction site. In some instances, small changes were made in the allocations after farmers began to register for the auctions in an effort to balance supply with demand.

The process for selling feed supplement was with sealed bid tender on consecutive dates at eight sites. Two auctions were held at each site—the first at 10:00 a.m. and the second at 12:00 noon. The two auction procedure made it possible for farmers to learn the auction process at the first auction and then adjust their bidding strategy for the second auction. The allotment of feed supplement at each site was divided equally between the 10:00 and 12:00 auctions. To allow additional opportunities to acquire supplement, the eight auctions were held on consecutive days.

Limits were placed on bidders at the auctions. The maximum a single farm could win was 500 tons. This prevented a few large-scale farms from buying all of the limited quantity of feed supplement. Financial liquidity placed an additional limit on maximum purchases. During the registration process farmers wishing to bid more than 10 tons had to present their bank guarantee or letter of credit to cover the value of their bids. Bids were only accepted up to the limit established by the bank letter of guarantee.

The minimum 10-ton limit was set to ease the discharge from Constanța Port since IFDC distribution capabilities were limited. Farms bidding for the minimum quantity were not required to present a bank guarantee, but they had to make payment for the feed supplement into the special Banca Agricola account within 14 days of the auction.

Farmers were given the opportunity to make multiple bids within the 10- to 500-ton limits provided all bids made were covered by a bank guarantee. Multiple bids allowed farmers to make different price-quantity combinations and thus spread risk on different price levels rather than rely on one bid.

When two or more farmers submitted bids at the same price and the remaining quantity was not adequate to supply the quantity bid at that price, a tie was declared and a lottery conducted for the remaining quantity. Each bidder's number was entered on slips of paper equal to the number of lots bid at the tied price and placed in the lottery box. Slips of paper equal to the number of remaining lots available for sale were then withdrawn from the lottery box and quantities awarded according to the numbers drawn.

In the event the last lot offered at an auction would not completely supply the quantity bid by a farmer, the farmer was given the opportunity to accept the partial quantity at his price. If the bidder refused the partial quantity, the final lot was offered to the next highest bidder until accepted.

A floor price was set to maintain revenue for the cadastral survey. The floor price was set at 80% of estimated import parity price, the estimated cost for a private business to import the product less duties and taxes (Table 2).

Table 2. Floor Price Calculation

Floor Price Calculation	Price
Soybean meal at Eastern U.S. port	\$175/ton
Premix and mixing fees	\$79/ton
Ocean freight	\$60/ton
Port charges at Constanța	\$6/ton
Total cost c.i.f. Constanța	\$320/ton
Official exchange rate (May 16, 1993)	615 lei/\$
Total cost c.i.f. Constanța	197 lei/kg
Floor price at 80% c.i.f. Constanța	157 lei/kg

Auction Registration

The auctions were conducted one month after the seminars (June 18-29, 1993). Farmer registration started at 8:30 a.m. and involved multiple steps. First, farmers were asked to provide their complete address and telephone number. This was necessary for future contacts about product delivery and use. Farmers who had attended the seminars were reassigned their original four-digit code number allowing for correlation of the bidder with the previously completed questionnaire. If a questionnaire had not been filled out, a new one was issued to obtain the basic information about productivity, farm size, etc. Farmers who had not attended the seminars were assigned a number and presented the questionnaire for completing.

The second registration step involved reviewing the farmers documents to ensure that only private farmers participated. This review was performed by an international independent accounting firm. Only a few farmers were turned away because of improper documentation. Most of the farmers who were turned away were able to gather the required documents in time to participate in the 12:00 auction.

Confirming letters of credit or bank guarantees was the third step for farmer participation. A representative from the Banca Agricola attended all auctions to assist in verifying the bank guarantees and letters of credit. The bank official also assisted in giving instructions to ensure the deposit of funds into the special account. Farmers were issued a receipt for the retained letters of credit and were instructed that total bids could not exceed the value of the guarantees presented. Those bidding for a minimum of 10 tons were exempted from having a bank guarantee on auction day.

The last registration step was IFDC staff review of registration forms and contract signing between the bidder and IFDC. At this point the farmer was provided with the needed number of bid forms and an envelope to enclose the sealed bids.

Quantity of product offered was also announced, with one-half tendered at each of the 10:00 and 12:00 auctions.

The Bidding Procedure

The deadline for registering for the 10:00 o'clock auction ended at that hour. Bidders in the registration process were allowed to complete their bids. After all bids were submitted, the box was publicly opened and bids were entered onto a spreadsheet for ranking and calculating the bid values to ensure that bank guarantees were not exceeded. Bids below the floor price and those exceeding bank guarantees were voided. When all bids were entered, a printout was made and reviewed for proper data entry.

The bids were then linked in descending order, the highest price first. Several printouts of the sorted bids were made along with an overhead visual for presentation to the bidders. The market clearing price was highlighted and in cases of a tie, a lottery was conducted for the lots to be sold at that price.

Upon completion of the 10:00 auction, farmers wishing to participate further obtained new bid forms and envelopes for the 12:00 auction. Unsuccessful bidders could retrieve their bank documents and leave if they desired. Farmers arriving late were allowed to register up to the hour of 12:00. Farmers satisfied with the quantity won for the day were able to complete the documentation for the transfer of funds and receive the documents permitting pickup at the port of Constanța along with an estimated pickup date. Several bidders who were unsuccessful or only partially successful at early auction sites did attend later auctions.

Results of Seminars and Auctions

Publicity to acquaint farmers with the feed supplement program was most effective through television, with over one-half of the participants at the seminars and auctions having learned of the program through this media. The Ministry of Agriculture was also helpful in disseminating information to farmers with 37% of seminar and auction participants having been informed by the ministry. About one-fourth of the respondents reported newspaper, radio, and posters as the contact media. An interesting observation is the increasing

importance of the Ministry of Agriculture and the bank when only eventual auction winners responses are considered.

Table 3. Farmer Reports on Contacts by Media Regarding IFDC Program

Media Type	Seminar and Auction	Auction Bidders	Auction Winners
	(%)		
Television	54	53	56
Ministry of Agriculture	37	44	46
Newspaper	28	24	21
Radio	26	25	25
Poster	26	27	26
Banca Agricola	7	13	16
IFDC Letter to Farms	4	10	10
Total Respondents	301	104	77

Note: Sums greater than 100% because of multiple responses.

Program participation was limited most by credit availability and, for small farmers, by travel distance and minimum lot size. Farmers listed credit as the first limiting factor for participating in the auctions and the largest constraint to increasing livestock and crop production at all seminar and auction locations.

Travel distance was also a factor. Representation of large farms at the seminars was more evenly distributed throughout the country. In comparison, small and medium sized farms (less than 4,000 head of swine and/or cattle) were much more concentrated near seminar sites with about one-half from the county hosting the seminar versus only one-third of large farms. In addition, small farmers with less than 50 animals reported the 10-ton minimum limit as a major constraint.

The auctions proceeded in an orderly manner and were well received by farmers, bankers, and local and attending national political and agricultural officials. The 16 auctions at 8 locations drew a total of 104 unique bidders with 77 of the bidders being successful in receiving supplement.

The distribution of all bidders, unsuccessful bidders, and successful bidders by quantity awarded according to the number of locations attended (two auctions at each location) is shown in Table 4. Most bidders (85%) were satisfied with participating in two auctions (one location). However, the greater the quantity of feed supplement acquired the more auctions attended. In all but one case, multiple location participants were successful in acquiring additional supplement.

Table 4. Distribution of Bidders by Number of Auction Locations Attended

Number of Locations Attended	Total Bidders	Successful Bidders			Unsuccessful Bidders	
		Total	10-90 Tons	100-290 Tons		300-500 Tons
1	88	62	37	17	8	26
2	15	14	5	6	3	1
3	1	1	0	0	1	0
Total	104	77	42	23	12	27
Average	1.2	1.2	1.1	1.3	1.4	1.0
Standard Deviation	0.40	0.44	0.32	0.44	0.64	0.19

In Table 5 the general increase in tons awarded is accompanied by an increase in the number of bids submitted. The average number of bids submitted by all successful bidders was 5.0 bids.

Table 5. Distribution of Bidders by the Total Number of Bids Submitted in All Auctions

Number of Bids Submitted	Total Bidders	Successful Bidders				Unsuccessful Bidders
		Total	10-90 Tons	100-290 Tons	300-500 Tons	
1	20	8	7	1	0	12
2	24	20	18	2	0	4
3	8	7	4	2	1	1
4	14	10	5	4	1	4
5-6	15	13	6	7	0	2
7-8	11	8	2	3	3	3
9-10	5	4	0	3	1	1
11-15	5	5	0	1	4	0
15+	2	2	0	0	2	0
Total	104	77	42	23	12	27
Average	4.5	5.0	2.9	5.7	11.2	3.1
Standard Deviation	3.9	4.2	1.7	3.0	5.4	2.6

The level of excess demand affected bidding levels. The calculated demand/supply ratios for each auction are displayed in Table 6. The ratios were calculated by dividing total tons bid at the 10:00 auction by the total product offered at that auction site. The total product offered was used because this was the effective supply for the day and was known by the bidders. The 12:00 demand/supply ratio was calculated by dividing the 12:00 bidding demand by the 12:00 product offered since only this amount was remaining for the second auction. The demand/supply ratios ranged from 2.82 at the 12:00 Constanța auction to 0.76 and 1.03 at the Craiova auctions.

Farmers at the Craiova auction, realizing that little excess demand existed, submitted bids slightly above the floor price at 160 lei/kg at the 12:00 auction. An additional problem occurred in the Braila 12:00 auction with the open collusion of several bidders at the price

of 180 lei/kg (the potential low winning bid for that session). As a result of collusion all bids at the price of 180 lei/kg and below were disqualified. However, at the Constanța (final) auction the average award price was 276.3 lei/kg with a demand/supply ratio greater than two.

Table 6. Calculation of Demand/Supply Ratios

Location	Bidding Demand (tons)		Supply of Product Offered (tons)		Demand/Supply Ratio	
	10:00	12:00	12:00	Total	10:00	12:00
Giurgiu	1,360	860	400	800	1.70	2.15
Bucharest	1,570	880	550	1,100	1.43	1.60
Craiova	610	410	400	800	0.76	1.03
Iasi	3,880	2,150	1,200	2,400	1.62	1.79
Arad	1,040	750	450	900	1.16	1.67
Braila	2,350	420	420	1,420	1.65	1.00
Cluj-Napoca	1,980	930	900	1,800	1.10	1.03
Constanța	2,010	1,410	500	1,000	2.01	2.82
Total	14,800	7,810	4,820	10,220	1.45	1.62

Table 7 shows the increase from 10:00 to 12:00 in the average price of all bids made under conditions of a demand/supply ratio greater than 1.2. Also of significance is the increase (between the 10:00 and 12:00 auctions) in average price of losing bids with a demand/supply ratio greater than 1.2 versus the decrease in the average bid prices under a demand/supply ratio less than 1.2.

Table 7. Bid Price Comparison Between Auction Times Using the Demand/Supply Ratio of 1.2

Categories of Bids	Average Prices		
	10:00	12:00	Change
All: d/s > 1.2	204	225	+21
All: d/s < 1.2	195	205	+10
All bids	201	219	+18
Winning: d/s > 1.2	241	241	0
Winning: d/s < 1.2	212	208	-4
All winning bids	230	228	-2
Losing: d/s > 1.2	190	205	+15
Losing: d/s < 1.2	190	169	-11
All losing bids	188	202	+14

Several other factors also affected the bid price level: transport distance (cost) between the farm and the product delivery Port of Constanța (Table 8); sequence of auction dates, as later auctions presented fewer future bidding opportunities; and the demand/supply ratio at each auction.

Table 8. Average Bid Prices Over a Distribution of Distances From Constanța

Distance to Constanța (km)	All Bidders		Successful Bidders		Quantity Bid by Successful Bidders
	Number	Average Price	Number	Average Price	
0-100	8	226	6	289	440
101-200	8	234	7	249	1,150
201-300	16	219	10	231	1,790
301-400	21	210	15	231	2,020
401-500	12	211	8	235	1,650
501-600	23	188	17	194	1,290
601-700	4	194	4	205	630
701-800	5	190	4	198	480
800+	6	206	6	217	770

To measure adequately the effect of each factor, all should be considered simultaneously. In this regard, preliminary analysis indicates that farmers discount bid price levels as a function of transport distance at almost twice the level indicated by commercial cost of product transport.

Table 9 shows the average auction prices in order of auction number. Generally, as the auctions progressed and with significant excess demand, the bid prices increased.

Table 9. Average Auction Award Prices Ordered by Auction Dates With the Demand Supply Ratios For Comparison

Location	Auction Order	Demand/Supply Ratio	Average Award Price
Giurgiu	1	1.70	209.6
Bucharest	2	1.43	234.5
Craiova	3	0.76	174.1
Iasi	4	1.62	234.5
Arad	5	1.16	212.7
Braila	6	1.65	250.1
Cluj-Napoca	7	1.10	205.5
Constanța	8	2.01	276.3

A complete summary of the auction results with average prices, quantities bid and sold, and revenue generated for the Ministry of Agriculture is reported in Table 10. The overall average award winning price was 227 lei/kg, which equates to \$309/mt at the June 30, 1993, official exchange rate of 735 lei/dollar. Thus, the average award price is \$11/ton below the calculated import parity price of \$320/ton. The average award price for 32 of the 77 winning farmers was over the import parity price accounting for 4,380 of the 10,220 tons sold by auction. Results from this first series of auctions show that Romania has a significant demand for high protein feed supplement at internationally competitive prices.

Addendum

During August 1993, a marketing experiment was undertaken with objectives of determining the potential small-scale farmer market for swine supplement and the environment that a retail dealer of feed supplement would encounter in a small local market. World Care International scheduled a farmers' fair at Curtea de Arges, a small town and local farmers' market, located approximately 150 km northwest of Bucharest. The IFDC staff decided to use this fair as the place and forum for the experiment.

Ninety (90) tons of high protein feed supplement was made available to private farmers at the fair at a cash purchase price of 235 lei/kg. This was the average successful bid price of 227 lei/kg for the eight auctions mentioned above plus 8 lei/kg for transporting the supplement from Constanța to the fair. The supplement was stored near the fair in 25-kg paper bags so that farmers could take immediate delivery.

The farmers were willing to purchase the supplement at the offered price. A total of 62 farmers made purchases with 29 purchasing 1-5 bags each and 6 farmers purchasing more than 51 bags. This is early evidence that a definite market exists for feed supplement at the small-scale farmer level in Romania.

Table 10. Summary Auction Results, IFDC-Romania, June 18-29, 1993

Auction Location and Date	Hour	Price (lei/kg)			Quantity (tons)		Number of Bidders	Number of Winners	Revenue	
		Max	Average	Market Clearing	Bid	Sold			1,000 lei	U.S. Dollars (735 lei/\$)
Giurgiu June 18	10:00	211	201.6	194	1,360	400	10	2	80,640	109,714
	12:00	230	217.65	210	860	400	10	5	87,060	118,449
	Total		209.63			800			167,700	228,163
Bucharest June 21	10:00	251	228.69	213	1,570	550	11	3	125,780	171,129
	12:00	280	240.26	225	880	550	9	6	132,200	179,864
	Total		234.53			1,100			257,980	350,993
Craiova June 23	10:00	235	187.75	158	610	400	6	5	75,100	102,177
	12:00	163	160.43	159	410	400	5	4	64,170	87,306
	Total		174.09			800			139,270	189,483
Iasi June 24	10:00	245	230.52	215	3,880	1,200	24	6	276,620	376,354
	12:00	266	238.55	225	2,150	1,200	21	12	286,260	389,469
	Total		234.54			2,400			562,880	765,823
Arad June 25	10:00	225	208.89	200	1,040	450	7	4	94,000	127,891
	12:00	250	216.47	200	750	450	8	7	97,410	132,531
	Total		212.68			900			191,410	260,422
Braila June 26	10:00	274	253.26	240	2,350	1,000	20	11	253,260	344,571
	12:00	320	242.62	185	1,100	420	17	8	101,900	138,639
	Total		250.11			1,420			355,160	483,211
Cluj June 28	10:00	271	214.42	200	1,980	900	22	11	195,680	266,231
	12:00	231	196.49	180	930	900	14	13	176,840	240,599
	Total		205.46			1,800			372,520	506,830
Constanța June 29	10:00	301	276.12	250	2,010	500	14	6	138,060	187,837
	12:00	330	276.44	241	1,410	500	12	8	138,220	188,054
	Total		276.28			1,000			276,280	375,891
Total June 1993	10:00		229.47		14,800	5,400	114	48	1,239,140	1,685,905
	12:00		224.91		8,490	4,820	96	63	1,084,060	1,474,912
	Total		227.32		23,290	10,220	210 ^a	111 ^a	2,323,200	3,160,816

a. 104 unique bidders and 77 unique winners, totals are greater because of winners at multiple auctions.

Figure 1. Seminar and Auction Sites



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