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## Beef Producer Choice in Cattle Marketing

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In addition to the conventional auction method of cattle marketing, some alternative marketing arrangements include sale by private treaty, video auction, retained ownership, and use of strategic alliances. This study finds that 91% of Louisiana producers use conventional auctions, while 39% use other types of marketing arrangements. The most heavily used alternative marketing arrangement is private treaty, at 26%. Those producers using alternative marketing arrangements tend to be larger, have heavier weaning weights, have more diverse farming operations, be younger, have greater contact with their county extension agents, and depend less on income from off-farm sources.

**Key Words:** cattle marketing, conventional auction, private treaty, strategic alliance, video auction

Faced with a declining share of the U.S. domestic demand for meat, beef industry members have considered an array of strategies to increase their competitiveness. Some researchers have suggested that increased coordination from the cow-calf production phase to the slaughter phase would lead to increased efficiency and reduced product costs. Ultimately, consumers would be provided with lower priced, more uniform products that consistently meet their preferences (Gillespie et al., 2000; Lamb and Beshear, 1998). Two phases whose linkage has been primarily spot-market based have been the cow-calf/stocker phase and the feedlot phase. Traditionally, U.S. cow-calf producers have marketed calves via local conventional auctions. These animals would eventually be shipped to feedlots in Texas or other U.S. High Plains states for feeding. More recently, a number of alternative marketing strategies have been developed which facilitate more efficient transfer of market signals from the feedlot phase to the cow-calf production phase.

The objectives of this study are to determine the extent of adoption of each of these alternative marketing systems in Louisiana and the types of producers most likely to utilize each. With the exception of Schmitz, Moss, and Schmitz (2003), limited previous literature has examined the extent of adoption of alternative marketing practices in the U.S. cattle industry. However, a brief discussion of previous

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work is included in the description of the variables used in the econometric models in this study.

To add perspective on Louisiana's representativeness of the rest of the U.S. beef industry, the following information is provided. Louisiana is primarily a cow-calf production state, producing almost exclusively weaned or backgrounded calves for shipment to feedlots west of the state. Louisiana cattle production is fairly typical of the southeastern United States,<sup>1</sup> which has 24% of the U.S. inventory of beef cows, 31% of the operations with beef cows, and a higher percentage of operations with 1 to 49 cows compared to the rest of the United States (71% versus 62% in the U.S. as a whole) [U.S. Department of Agriculture/National Agricultural Statistics Service (USDA/NASS), 2003]. Louisiana is part of a cow-calf production region that benefits primarily from the availability of year-round quality forage. The greater percentage of producers in the smaller size categories leads to producers depending more heavily upon conventional auctions, consistent with findings by Schmitz, Moss, and Schmitz (2003). Results of our study are likely to hold in the southeastern United States to a greater extent than for other regions.

### **Methods of Marketing Beef Cattle**

The traditional conventional auction method of marketing has provided cattle producers with a central location where multiple buyers can bid on their cattle. Most conventional auctions operate one or two days per week. Local cattle producers haul animals to the facility where they are bid upon by various types of buyers (primarily order buyers), with the highest bidder purchasing the cattle. The conventional auction is a useful marketing option for most types of beef animals: weaned calves, backgrounded animals, and cull bulls, cows, and heifers. Assuming sufficient cattle volume, competition among the buyers, and good information on animal value by both buyer and seller, this marketing method is efficient.

There are several potential drawbacks of the conventional auction method of marketing for all cattle on the farm. Of particular importance are the following:

- (a) The number of buyers bidding on animals on a particular day may be small, reducing competition. Oligopsony power may result, reducing the price received by the seller.
- (b) Buyers may base animal value more on perception than true animal value.
- (c) Some buyers' primary goal is to fill a truck to capacity. These buyers are unlikely to pay premium prices for top quality animals.
- (d) Producers who have added "unobservable" value to animals, such as specific vaccinations or creep feeding for calves, may not receive higher prices for these animals, even though their expected performance and survivability in the next phase is greater.

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<sup>1</sup> Southeastern states included in this list are Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia.

- (e) Commission fees must be paid to the conventional auction sale facility, typically on a per animal basis.
- (f) Transportation costs to and from the sale facility are incurred by the seller.
- (g) The seller has already incurred costs associated with transporting animals from the farm or ranch; therefore, “no sale” may not be a viable option for the seller.
- (h) Significant shrink is likely as the animal is hauled to and kept at the conventional auction prior to sale.

The presence of items (e)–(h) above suggests that transaction costs incurred by the cow-calf producer are significant under the conventional auction method of marketing. The result of issues (b)–(d) is that many producers are less likely to utilize the conventional auction for selling higher quality stock. If consumer preferences are not efficiently transferred to cow-calf producers via the pricing mechanism, producers are not likely to produce the types of animals required to meet consumer demand, and thus successfully vie with competitor meats. As reported by Schmitz, Moss, and Schmitz (2003), in 2002, approximately 66% of stocker cattle in the top 15 cow-calf producing states were marketed via conventional auctions.

Several additional marketing alternatives include video auctions, sale by private treaty, internet marketing, use of strategic alliances, and retained ownership. Producers selling via video auction gather animals to be sold on the farm and the marketing agent videotapes them. Videos are sent to one or more remote locations where a number of different kinds of buyers bid on the lot of animals. Advantages of this method relative to the conventional auction are: (a) a larger number of buyers generally bid on the animals (as discussed by Bailey and Peterson, 1991), thereby increasing competition; (b) buyers who purchase via video auction are typically interested in specific types of animals, and are more likely to pay premium prices for specific animal traits; (c) commission fees are typically lower; and (d) since the animals remain on the farm or ranch, the seller can “no sale” if offers are inadequate and shrinkage is minimal. The major disadvantage of this marketing approach is the large volume of relatively uniform animals needed to effectively use video auctions, limiting this option to larger producers or alliances of smaller producers. However, the larger volumes tend to attract buyers searching for larger quantities of consistent quality animals. If these buyers’ preferences are based upon feedlot operator preferences (as well as packer preferences), then pricing efficiency has been gained. Schmitz, Moss, and Schmitz (2003) found that approximately 11% of stockers were sold via video auction in the top 15 cow-calf producing states in 2002.

Commercial cattle producers who sell via private treaty (direct to order buyer) generally must also have enough animals for sale to attract buyers. As with the video auction, buyers who purchase using private treaty are typically interested in specific, consistent animal types, and will pay premium prices for animals with these traits. Neither private treaty nor video auction marketing have as a goal the more efficient transfer of price signals from feedlot to cow-calf producer, but both generally do have more efficient transfer since they involve sellers and buyers who are interested

in specific animal types. Both methods also have the potential to reduce transaction costs since hauling to the conventional auction is avoided, actual shrinkage is minimal, and sales commission is reduced (video auction) or not charged (private treaty). Private treaty sales are also frequently used by purebred producers, generally for smaller numbers of animals. Schmitz, Moss, and Schmitz (2003) report that approximately 19% of stockers were sold via private treaty in the top 15 cow-calf producing states in 2002.

Internet marketing has been used to a limited degree in the cow-calf sector. Using internet marketing, producers typically photograph cattle, place the photos on an internet site, and invite buyers to view the animals on the internet site. The advantages and disadvantages of internet marketing are generally similar to those for private treaty sales. Schmitz, Moss, and Schmitz (2003), as well as Moss et al. (2003), discuss the advent of internet marketing in the beef sector. Schmitz, Moss, and Schmitz (2003) estimate that approximately 5% of cattle being marketed in the top 15 cow-calf producing states in 2002 were sold via the internet.

Retained ownership is a marketing agreement whereby the seller usually maintains ownership of cattle through the feedlot phase. A contract between the feedlot and cow-calf producer specifies that the producer is paid when the animals are marketed and slaughtered. Retained ownership in custom feedlots was introduced when economies of size left small, individually owned feedlots less competitive than large, commercial lots. Custom feeding allowed cattle producers to be involved in the feeding segment, securing access to cheaper feed and other inputs available to commercial feedlots (White and Chesnick, 1993). A number of retained ownership arrangements exist, reflecting the array of grazing and feeding alternatives available to them. Retained ownership offers cow-calf/stocker producers an opportunity to increase their average returns, though the profitability of cattle feeding varies from year to year, depending upon the market (Peel, 1994). Producers receive valuable feedback on how their animals grade, as well as a price that reflects carcass quality. Consequently, they are able to make production decisions which ultimately lead to improved animals, and thus higher carcass quality.

Cattle producers have formed or joined existing strategic alliances for a number of different reasons, with the most common being to receive higher prices for animals with specific traits. Examples of three such alliances follow. As discussed by Bu (2004), The Gene Net Alliance has an agreement with Swift and Company to provide animals for its packing plants. This relatively large alliance consists of over 1,000 producers from about 25 states. The alliance was originally formed to help producers receive higher prices for high quality animals through grid pricing.

Bradley Natural Beef, on the other hand, has over 100 producers who supply feeder calves to three feedlots (Davis, 1999). Bradley uses a grid pricing system based on carcass weight, marbling scores, yield grades, and brand location. No implants or added growth hormones are allowed.

A smaller strategic alliance is the Vernon Beef Alliance, located in Vernon Parish, Louisiana. This group of 20 to 25 cattle producers was formed with the help of a county agent with the Louisiana Cooperative Extension Service, with the goal of

improving returns to local beef producers. Producers in the Alliance use similar breeding stock and management strategies to produce premium quality animals. With higher quality and quantity of animals for sale, producers market the animals at premium prices using a video auction or private treaty sales.

The common theme among each of these alliances is the production of consistently high quality animals which can be produced in large quantities in order to receive premium prices. In each case, the type of animals to be produced and marketed is ultimately determined by consumer demand. Bu (2004) provides in-depth case studies of six strategic alliances currently involving the cow-calf sector.

### Data and Methods

Data for the analysis were collected via mail survey during the summer of 2001. A total of 1,472 Louisiana producers were surveyed, with 25% of the sample coming from each of the following four size categories: 1–19 animals, 20–49 animals, 50–99 animals, and 100 or greater animals. Using a modified “Total Design Method” approach (Dillman, 1994), producers were initially sent the survey, followed by a postcard reminder two weeks later. Finally, a second copy of the survey was sent to nonrespondents two weeks after the postcard reminder. Including producers who indicated they were no longer in business, the final response rate was 36%, with 495 respondents. The response rate would likely have been greater had those with no beef cattle been asked to return their surveys indicating such, and if first class rather than bulk mail had been used, whereby nondeliverables would have been returned to us.

Binomial logit analysis is used to determine the types of producers most likely to adopt each of the following marketing arrangements: conventional auction, private treaty, video auction, and retained ownership. Internet marketing is not included in the logit analyses because only five producers reported using this arrangement. Many producers who use private treaty, video auction, or retained ownership to sell cattle also utilize the conventional auction or another arrangement to sell some of their animals. Thus, binomial logit analyses are run for each arrangement. An additional model is run to determine the types of producers who are members of beef marketing strategic alliances or cooperatives.

The binomial logit model allows for determination of the probability of a producer of a specific description utilizing a given marketing arrangement, as in equation (1) (Greene, 2000):

$$(1) \quad \Pr(Y = 1) = \frac{e^{\beta'x}}{1 + e^{\beta'x}} = \Lambda(\beta'x),$$

where  $\Pr(\cdot)$  represents probability,  $Y = 1$  indicates marketing arrangement  $Y$  has been adopted,  $x$  represents the variables influencing the adoption of the marketing arrangement, and  $\beta$  represents the parameters to be estimated. Since a stratified sample was used with 25% of the sample in each of four size categories, data are weighted

according to stratification in the regression model. Thus, responses from the smallest size category (1–19 animals) are weighted more heavily in the regression because they are from the size category with the largest number of producers.

Estimates of  $\beta$  in logit analyses are somewhat difficult to interpret directly, with the major contribution being direction of effect. Hence, marginal effects may be used to determine the effect of an independent variable on the change in probability of adopting a particular marketing strategy. In this study, marginal effects are calculated as in Greene (2000, pp. 815–816) for continuous variables, and Greene (p. 817) for dummy variables.

Variables of interest that could affect the producer's marketing arrangement selection decision were categorized under the following headings: farm type, farmer characteristics, and animal type. Farm type variables include the number of animals in inventory on the farm (*ANIMALS*), whether stockers are produced (*STOCKER*), and the number of farm enterprises other than beef production (*DIVERSE*). Farmer characteristic variables include age (*AGE*), whether the producer holds a college bachelor's degree (*COLLEGE*), number of contacts with an Extension Service county agent over the past year (*COUAGENT*), and percentage of income from off-farm sources (*OFF\$FARM*). Variables categorized as animal type include the average weaning weight of calves produced (*WEANING*); the percentage of cows in the operation that are purebred (*PUREBRED*); and number of vaccines for the following that are administered prior to calves being sold (*VACCINE*): blackleg, respiratory complex, bangs, and vibrio.

It is expected that larger producers are more likely to market cattle via video auction and/or private treaty; thus, *ANIMALS* is expected to have a positive sign in both of these models. In the case where a large number of animals are to be sold, both marketing options have the potential to reduce average variable costs per animal sold since transportation costs to the conventional auction are not incurred, and marketing commission is not paid under private treaty. Buyers are more willing to purchase animals via these marketing agreements if there are at least a minimum number of animals to be purchased (generally one truckload). Otherwise, the marginal transportation and transaction costs associated with procuring animals via numerous producers would be greater than the marginal benefits associated with obtaining consistent quality animals. Schmitz, Moss, and Schmitz (2003) found greater use of video auctions and internet sales in states where there were larger shares of beef cow herds with greater than 500 head. *STOCKER* is included to account for any differences in marketing if the producer is involved in this production phase. Given the greater uniformity often achieved via stocker operations, stocker producers are assumed to be more likely to sell via video auction or private treaty.

It is expected that risk-averse producers are more likely to sell animals via a marketing arrangement other than the conventional auction. Conventional auctions are often used by order buyers to fill remaining slots in feedlots or slaughterhouses after utilizing other means to procure cattle. As such, the conventional auction is particularly subject to frequent fluctuations in cattle pricing, depending upon feedlot and slaughter plant needs. An additional concern is that lower than expected prices could

be paid for cattle on a particular day due to a small number of buyers. Lower prices could occur due to monopsony or oligopsony power, or the possibility of animals being bought for a purpose other than their best use. Producers who haul cattle to the conventional auction incur transportation costs that would be lost if they choose not to sell. Several of the alternative marketing arrangements may reduce risk to the seller.

Lesser (1993) explains that direct sales (private treaty) may reduce price uncertainty, but the amount of uncertainty reduced depends upon the specific negotiation. For instance, if price is agreed upon during the negotiation process, uncertainty is reduced. This sale agreement may be for delivery at some point in the future, allowing the buyer to schedule use of facilities more effectively. Such agreements enable the producer to reduce price risk and the uncertainty of transporting animals to the conventional auction, and experiencing a “no sale.” Video auctions reduce price risk in that a price is agreed upon without the producer incurring the risk associated with transporting animals to the conventional auction, suffering actual shrinkage, and experiencing “no sale.” As with some private treaty sales, video auctions often involve the sale of animals at some point in the future (say, one month). Thus, a price may be agreed upon ahead of the time the animal is delivered, therefore reducing risk. In cases of both private treaty and video auction sales, the seller can opt not to sell if the price offered is unsatisfactory, without incurring transportation costs, shrinkage, and transaction costs associated with marketing via the conventional auction. Retained ownership may reduce price risk if the producer uses futures or options to lock in a base price ahead of time, with formula pricing used to determine premiums based on grade and yield.

Diversification is a strategy agricultural producers have used to reduce risk (Robison and Barry, 1987). If level of diversification indicates a producer’s risk preference, then one would expect the more diverse producer to be more risk averse. Due to the reduced risk associated with video auction, private treaty, and retained ownership arrangements, *DIVERSE* is hypothesized to be positively associated with the adoption of these arrangements.

The effect of producer’s age (*AGE*) on marketing arrangement choice is indeterminate. On the one hand, older, more experienced cattle producers would be expected to recognize the advantages of alternative marketing arrangements, and thus to adopt them. On the other hand, those who have been in the business longer may be slower to adopt newer marketing procedures; an analog is the reluctance of older producers to adopt technology (Feder, Just, and Zilberman, 1985).

Producers who are more informed are anticipated to be more likely to adopt alternative marketing practices as their awareness of the advantages of alternative marketing arrangements is greater. Thus, college educated producers (*COLLEGE*) and those who have more frequent contact with county agents (*COUAGENT*) are expected to be the strongest users of alternative marketing arrangements. Producers who receive a higher percentage of their income from an off-farm job (*OFF\$FARM*) are hypothesized to be less likely to enter into alternative marketing arrangements, since the importance of the farm as a primary source of income is lower.

It is expected that producers who are better managers will more likely sell via an alternative marketing arrangement. Producers who follow more extensive vaccination programs can receive premiums for better quality animals, quality traits that may be unobservable in the sale ring of the conventional auction. Thus, *VACCINE*, indicating the number of vaccines provided to calves prior to marketing (blackleg, respiratory complex, bangs, and vibrio), is expected to be positively associated with alternative marketing methods. Likewise, producers with heavier weaning weights (*WEANING*) are generally considered better managers, and are thought to be more likely to utilize alternative marketing arrangements. Finally, it is expected that purebred producers (*PUREBRED*) are more likely to market via private treaty, where the seller can have access to the buyer's ear.

## Results

Percentages of producers in each size category using alternative marketing practices are presented in table 1. The majority of producers (91%) use conventional auctions for marketing some cattle, indicating the importance of this market outlet even among those who use alternative markets. Producers who use alternative markets for calves may also choose the conventional auction for some calves, cull breeding stock, or other animals. Video auctions were used by only about 3% of the population, though 17% of the producers with greater than 100 animals employed this method of marketing. This finding highlights the importance of size in the ability to effectively benefit from this marketing practice. Twenty-six percent of the producers used private treaty to sell animals. Smaller producers may prefer this marketing practice for the sale of a few animals of specific traits, such as a steer for showing through 4-H programs. Those with more than 100 animals are likely utilizing this marketing practice for selling larger lots of cattle. Retained ownership was used by about 7% of the population, and approximately 14% of producers were members of a strategic alliance or cooperative.

Overall, 39% of the producers reported using one or more of the alternative marketing arrangements, with 65% of the producers having more than 100 animals using these practices (table 1). However, the survey results clearly show the continued prevalence of conventional auctions for selling cattle, with private treaty being used by a substantial percentage of the producers. Video auction, retained ownership, and strategic alliances are newer methods and not as well known as conventional auction or private treaty. Because of the small number of producers who made use of internet marketing, this practice is not included in the logit analyses. However, of the five producers reporting the use of internet marketing, two were in the 50–99 animal size category, and three were in the category with greater than 100 animals.

Logit results indicate that producers who raised fewer purebred animals or who derived a higher portion of their income from off-farm sources were more likely to utilize the conventional auction for marketing their cattle (table 2). Not surprisingly, this model had a relatively poor fit (McFadden's  $R^2$ ) since the majority of producers



**Table 1. Numbers and Percentages of Responding Producers Using Alternative Marketing Practices**

Measure	Conventional Auction	Video Auction	Private Treaty	Retained Ownership	Strategic Alliance	Alternative Markets
— 1 to 19 Animals, 67 Observations —						
Number:	58	1	18	7	9	27
Percent:	(87%)	(1%)	(27%)	(10%)	(13%)	(40%)
— 20 to 49 Animals, 98 Observations —						
Number:	94	0	19	3	12	31
Percent:	(96%)	(0%)	(19%)	(3%)	(12%)	(32%)
— 50 to 99 Animals, 104 Observations —						
Number:	101	6	29	2	15	41
Percent:	(97%)	(6%)	(28%)	(2%)	(14%)	(39%)
— 100+ Animals, 223 Observations —						
Number:	210	39	92	21	46	146
Percent:	(94%)	(17%)	(41%)	(9%)	(21%)	(65%)
— Weighted Percentages —						
Percent:	91%	3%	26%	7%	14%	39%

used the conventional auction to market at least a portion of their cattle. Marginal effects, as observed from table 3, show the probability of the 100% purebred producer utilizing the conventional auction is 0.0475 less than for the 100% commercial producer. Likewise, the probability of a producer who receives 100% of his or her income from off-farm sources utilizing the conventional auction is 0.0577 greater than that for the producer who receives no income from off-farm sources.

Producers who administered more vaccinations, had heavier calf weaning weights, were larger (more animals), or who had a lower percentage of purebred cows in their herds were more likely to utilize video auctions. These results suggest that the larger, better managed, commercial operations are more likely to utilize video auctions. Adding 1,000 additional animals to the farm increased the probability of utilizing the video auction by 0.04 (table 3). Likewise, 100 pounds of additional weaning weight resulted in an increased probability of 0.009 of utilizing the video auction. An additional vaccine increased the probability of utilizing the video auction by 0.0083.

Producers who raised purebred animals, had heavier calf weaning weights, were less specialized, younger, held a college degree, or had greater contact with their extension county agents were more likely to utilize private treaty sales. An additional enterprise on the farm was associated with an increased probability of 0.0456 of utilizing private treaty sales (table 3). Likewise, 10 years of additional age resulted in a decreased probability of 0.052 of utilizing private treaty sales. Having contact with the county agent was associated with an increased probability of 0.0561 of utilizing private treaty sales. These results point to the purebred producer who is more risk averse, more highly educated, and who is a better manager as the more likely

**Table 2. Logit Analyses of Choice of Marketing Practices of Louisiana Cattle Producers**

Variable	Conventional Auction	Video Auction	Private Treaty	Retained Ownership	Strategic Alliance	Alternative Markets
Constant	1.2281 (1.4639)	! 8.1612*** (2.2689)	! 1.2229 (0.9031)	! 0.6186 (1.4315)	! 3.4636*** (1.0983)	! 1.0004 (0.8621)
ANIMALS	0.0008 (0.0016)	0.0028*** (0.0009)	0.0006 (0.0006)	0.0006 (0.0007)	0.0004 (0.0006)	0.0014* (0.0007)
STOCKER	1.3605 (1.5826)	! 0.6664 (1.2092)	0.5272 (0.5169)	! 0.4645 (0.9698)	0.6423 (0.5627)	0.1030 (0.5264)
PUREBRED	! 0.7670** (0.3687)	! 1.4673* (0.8785)	0.6057** (0.2814)	! 0.1565 (0.4176)	0.3689* (0.1890)	0.8206*** (0.2878)
WEANING	! 0.0005 (0.0017)	0.0066** (0.0027)	0.0018* (0.0011)	! 0.0007 (0.0016)	0.0021 (0.0013)	0.0023** (0.0010)
VACCINE	0.0612 (0.1547)	0.6210*** (0.2387)	! 0.1227 (0.0923)	! 0.0105 (0.1464)	0.0128 (0.1083)	0.1058 (0.0896)
DIVERSE	0.2089 (0.1902)	0.1752 (0.2247)	0.2469** (0.1032)	0.0020 (0.1672)	0.1056 (0.1271)	0.3161*** (0.1021)
AGE	0.0148 (0.0170)	! 0.0011 (0.0231)	! 0.0282*** (0.0107)	! 0.0432** (0.0180)	! 0.0008 (0.0125)	! 0.0270*** (0.0102)
COLLEGE	! 0.4680 (0.3916)	0.3264 (0.5127)	0.3824* (0.2319)	0.1319 (0.3886)	! 0.7707** (0.3151)	0.2690 (0.2237)
COUAGENT	0.1915 (0.3046)	0.2430 (0.3863)	0.3034* (0.1774)	1.0173*** (0.3037)	0.6703*** (0.2173)	0.5998*** (0.1681)
OFF\$FARM	0.8392** (0.4236)	! 0.5152 (0.5534)	! 0.0832 (0.2681)	! 0.2952 (0.4306)	0.3433 (0.3240)	! 0.1077 (0.2548)
McFadden's $R^2$	0.0705	0.2407	0.1143	0.0964	0.0703	0.1548
% Correctly Predicted	94.262	90.984	71.520	93.443	83.197	70.080

Notes: Single, double, and triple asterisks (\*) denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. Values in parentheses are standard errors.

seller via private treaty. Contact with the county agent may be particularly useful in cases where purebred animals are sold directly to persons involved in 4-H programs.

Younger farmers or those who had greater contact with the county agent were more likely to retain ownership of cattle through the feedlot stage. The Louisiana State University Agricultural Center has run the Calf-to-Carcass program with which a number of Louisiana producers have been involved in recent years. Through this program, producers retain ownership of cattle through the feedlot and receive information on the animals' performance while in the feedlot. Producers can use this information in making future management decisions. Thus, it is not surprising that the county agent variable is significant (table 3).

Producers who had a higher percentage of purebred cows, did not hold a four-year college degree, or who had greater contact with a county agent were more likely to be involved in a strategic alliance or cooperative. The education results were somewhat surprising: holding a college degree resulted in a 0.0782 lower probability of

**Table 3. Logit Analyses of Choice of Marketing Practices of Louisiana Cattle Producers—Marginal Effects**

Variable (Units)	Conventional Auction	Video Auction	Private Treaty	Retained Ownership	Strategic Alliance	Alternative Markets
Constant	0.0760 (0.9174)	! 0.1092*** (0.0417)	! 0.2260 (0.1658)	! 0.0295 (0.0690)	! 0.3843*** (0.1187)	! 0.2424 (0.2085)
<i>ANIMALS</i> (number)	0.0000 (0.0001)	0.4E-04** (0.2E-04)	0.0001 (0.0001)	0.0000 (0.0000)	0.0000 (0.0000)	0.0003* (0.0002)
<i>STOCKER</i> (0/1)	0.0511 (0.0318)	! 0.0067 (0.0092)	0.1086 (0.1164)	! 0.0184 (0.0315)	0.0880 (0.0922)	0.0252 (0.1294)
<i>PUREBRED</i> (%/100)	! 0.0475** (0.0232)	! 0.0196 (0.0121)	0.1119** (0.0524)	! 0.0075 (0.0199)	0.0409* (0.0211)	0.1989*** (0.0701)
<i>WEANING</i> (pounds)	! 0.0000 (0.0001)	0.9E-04** (0.4E-04)	0.0003* (0.0002)	! 0.0000 (0.0001)	0.0002 (0.0001)	0.0006** (0.0002)
<i>VACCINE</i> (number)	0.0038 (0.0096)	0.0083** (0.0036)	0.0227 (0.0170)	! 0.0005 (0.0070)	0.0014 (0.0120)	0.0256 (0.0217)
<i>DIVERSE</i> (number)	0.0129 (0.0116)	0.0023 (0.0030)	0.0456** (0.0190)	0.0001 (0.0080)	0.0117 (0.0141)	0.0766*** (0.0248)
<i>AGE</i> (years)	0.0009 (0.0010)	! 0.0000 (0.0003)	! 0.0052*** (0.0020)	! 0.0021** (0.0008)	! 0.0001 (0.0014)	! 0.0065*** (0.0025)
<i>COLLEGE</i> (0/1)	! 0.0312 (0.0278)	0.0046 (0.0077)	0.0729 (0.0455)	0.0064 (0.0193)	! 0.0782*** (0.0288)	0.0656 (0.0548)
<i>COUAGENT</i> (0/1)	0.0119 (0.0187)	0.0033 (0.0052)	0.0561* (0.0326)	0.0486*** (0.0134)	0.0744*** (0.0234)	0.1453*** (0.0416)
<i>OFF\$FARM</i> (%/100)	0.0577* (0.0314)	! 0.0073 (0.0089)	! 0.0154 (0.0501)	! 0.0146 (0.0221)	0.0370 (0.0338)	! 0.0261 (0.0620)

Notes: Single, double, and triple asterisks (\*) denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. Values in parentheses are standard errors.

marketing via a strategic alliance (table 3). Overall, these results confirm the importance of the Extension Service in encouraging involvement in strategic alliances.

A logit run was made whereby, if any of the alternative marketing arrangements were used, the dependent variable was coded as “1,” and “0” if not. Producers with more animals, with a higher percentage of purebred cows, who had higher weaning weights, were more diverse, were younger, or who consulted more often with a county agent were more likely to use one of the alternative marketing arrangements.

## Conclusions

Results of this analysis indicate widespread continued use of the conventional auction by the vast majority of producers. This finding was expected, especially given that some animals, such as cull cows, are unlikely to be suitable for the other marketing arrangements. We were somewhat surprised at the low level of usage of video auctions by cattle producers (only 3%), though the larger producers were much more likely to employ this marketing practice than their smaller counterparts. These results are, however, similar to those reported by Schmitz, Moss, and Schmitz (2003), who

found low rates of use by producers in two other southeastern states, Arkansas and Kentucky. Private treaty sales were also more heavily used by the larger producers, though small producers also utilized them, likely for selling single animals rather than larger lots of animals. Consistent with the findings of Schmitz, Moss, and Schmitz (2003) among three other southeastern states (Kentucky, Tennessee, and Arkansas), a very small percentage of producers used internet sales.

Results underscore the use of private treaty and retained ownership by younger producers, while older producers are more traditional in their marketing practices, likely because of years of marketing through traditional outlets. This finding suggests that, as new, younger cattle producers enter the industry, greater use of alternative marketing arrangements can be expected. Signs on the coefficients for other alternative marketing practices were also negative, though nonsignificant. Surprisingly, results of the variable for college degree were somewhat mixed, with those holding college degrees using private treaty more, but strategic alliances less. Although signs on coefficients for the other arrangements (other than conventional auction) suggest greater use by college-educated producers, the signs are not significant.

Analysis results suggest the more risk-averse producers (using degree of diversification as a proxy for risk aversion) have greater interest in alternative marketing arrangements, especially private treaty sales. Results also show greater utilization of the conventional auction by producers who receive a greater percentage of their income from off-farm jobs. These findings likely indicate reduced interest in marketing issues by producers whose main source of income is from another source, or whose primary interest in farming is as a hobby.

County Extension agents appear to influence cattle marketing practices. The Louisiana State University Agricultural Center has been instrumental in its research and extension programs in improving calf marketing programs. Working in cooperation with the Louisiana Cattlemen's Association, the Louisiana Cooperative Extension Service has given producers the opportunity to retain ownership through the Calf-to-Carcass program, encouraging improved production and marketing activities. Extension has also been involved in relatively small-scale strategic alliances, such as the Vernon Beef Alliance.

Based on these results, university extension programs may be effectively used to educate producers about alternative marketing practices which can provide greater returns for producers. Furthermore, results show that producers with the greatest interest in such programs are likely to be larger, better managers, younger, full-time farmers. Programs in which extension agents might become more heavily involved include working with calf-based strategic alliances on marketing decisions, similar to efforts discussed by Bu (2004) with respect to three southeastern U.S. strategic alliances. Working with packers to provide carcass information back to producers in programs such as the Calf-to-Carcass program is another effective extension program. Finally, educational programs that inform producers of the benefits and costs of alternative calf marketing programs would be highly beneficial, as contact with cattle producer groups reveals that many are either unaware of or know very little about available alternative marketing practices.

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