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The Use of Accounting Information in Cattle Ranch Management: An Empirical Study

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ABSTRACT: The beef-cattle segment of the livestock industry occupies a very important position in the Brazilian economy. As in any other business venture, management in this segment requires reliable information as the basis for making decisions. This work examines how accountancy can assist cattle ranchers in managing their activities. In order to introduce the reader to the subject, the article explains some of the basic concepts of the cattle business and some peculiarities of this market. Then some accounting concepts are discussed, focusing on their application to cattle raising, and a survey is presented conducted among accounting firms in the state of Mato Grosso do Sul, to understand how cattle ranchers use accountancy as a management tool. It concludes with some general remarks on the importance of accounting information and controls to running a modern agribusiness in general.

Key-words: accounting, control, cost, inventory, cattle, management, stock raising.

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1. INITIAL CONSIDERATIONS

Agribusiness is behind the process of development of the world's more advanced countries, since no country was born industrial. So, farming and ranching are always initially of fundamental importance, with industry and services developing later.

It is no different in Brazil, and although the country has a large industrial base, agriculture is still one of the driving forces of the economy. Focusing more specifically on stock raising, the country today has the largest cattle herd in the world and is also among the largest exporters of beef. This success is due, among other factors, to its so called "green" beef – from grass-fed cattle – a synonym for food safety, giving Brazil a big competitive advantage, particularly after the outbreak of mad cow disease caused by the use of animal protein in cattle feed in Europe.

Brazilian ranchers also are investing heavily in technology, besides employing strict sanitary controls and adopting modern techniques of managing their herds. The growth of this market increases the need for the latest accounting and administrative procedures. After all, managing this activity requires a range of monetary and quantitative controls and information. Thus, accountancy must be able to provide improved information, controls and measurement methods on which to make informed decisions and maximize the results of the beef cattle business.

After a brief discussion of the cattle business, this work undertakes a review of the literature, followed by a field survey of how accounting is used today by cattle herders.

2. GENERAL CONCEPTS OF STOCK RAISING

For Ferreira (1995, p. 490), "stock raising is the art and industry of breeding and raising livestock." Marion (2001, p. 29) defines livestock as "animals, generally raised in the field, for farm work and domestic consumption or industrial purposes." Livestock can refer to cattle, hogs, goats, horses and sheep, among others.

Corroborating Marion, Santos and Segatti (2002, p. 29) define stock raising as "the art of breeding and raising livestock." These same authors (2002, p.29) explain that "stock raising involves animals, generally for slaughter and domestic consumption, farm services, dairy production or other industrial and commercial purposes."

1.1. Phases of Cattle Production

The beef cattle business involves three phases: **breeding**, **raising** and **finishing**. These are the stages that animals meant for slaughter usually go through, and can be done together or apart. The importance of establishing phases of production, besides its economic justification, rests in facilitating management, to determine such aspects as application of medicines, feeding, type of pasture, and extent and cost of land. Costs vary greatly depending on the phase, because young animals have different health and feeding requirements than adults. Marion (2002, p.106) defines these phases as follows:

a) **Breeding**: the basic activity of producing new calves, which will only be sold after weaning;
b) **Raising**: the basic activity, starting with yearling calves, of raising them to the age for fattening.

c) **Finishing**: the basic activity of fattening the animal until it is ready for slaughter.

Lazzarini Neto, cited in Cantarino (1998, p. 54, our emphasis), says that:

> *The more profitable phases are **raising** and **finishing**, although they are more susceptible to variations in the market price of replacement animals. Hence, the activity of **breeding** should preferably be carried out in areas where costs are low. There are two inconveniences to the raising phase: there is a greater risk caused by variations in the price of replacement animals, and there is a need to devote time to buying and selling the animals. Finishing, or fattening, presents high risks and requires great dedication to the process of marketing the animals. Another factor should be considered in this phase as well: the animals are more susceptible to falling pasture production, because as more mature animals they do not convert food into meat as efficiently as younger animals.*

A beef cattle operation can involve all three phases (complete cycle), just one of the phases, or a combination of breeding/raising or raising/finishing.

The young calves are generally weaned at between eight and ten months of age, and a cow's gestation period is between 280 and 290 days" (Lazzarini Neto, 2000, v2, p.36).

1.2. System of Breeding and Raising Cattle

The system of breeding and raising cattle can be divided into **extensive and intensive**. The extensive system is that where the animals are produced on a large land area, without constant supplementary feeding or veterinary care, and feed on natural pasturage (free-ranging cattle). According to Cantarino (1998, p.59), "this system requires five hectares to raise one animal unit, and the cattle are not generally slaughtered until three years of age."

The intensive system involves less land area, but there are more investments in growing pasturage and regular visits by veterinarians. The cattle are generally of better genetic quality, and besides natural forage, they are given supplementary commercial feed, salt, etc. According to Cantarino (1998, p. 59), "in this type of operation the animals are usually slaughtered before reaching three years of age, and fewer hectares are needed than the five per animal unit in extensive ranching."

It should be clarified that animal unit (AU) is a predetermined measure, corresponding to 450 kg of live weight. Its use facilitates controls, such as calculation of pasture crowding and allocation of overhead, etc. So, for example, a steer weighing 380 kg corresponds to 0.84 AU (dividing 380 kg by 450 kg), an average cow corresponds to 1 animal unit, a bull to 1.25, and a male calf under twelve months of age to about 0.25. This classification, of course, can vary according to the region and breed.

The intensive system can involve pasture or confinement. The intensive pasture system is that where the rancher invests in planting and maintaining pasturage, offers better quality grass and complements it with mineral salt. The confinement system is currently only used for fattening, and involves a higher concentration of cattle in a small pasture area or feedlot, where the animals basically receive commercial feed.

1.3. Classification of Cattle by Category

To facilitate management (to determine feeding, reproduction, vaccination, weight gain, movement to new pastures, roundup, etc.), it is necessary to classify cattle into categories. The classification below is based on Marion (1996, p. 49):

- **Calf**: From a newborn animal up to the age of 12 months.
- **Yearling calf**: This is the name for a calf from 13 months until 24 months of age, or until slaughter for a male, and the first calving for a female (yearling heifer).
- **Young bull**: The name for an uncastrated male from weaning until first reproduction.
- **Bull**: A young bull is considered to be a full-grown bull at between 2 and 3 years of age, when it undergoes experimentation. If the animal is a good reproducer, it will remain with the herd, otherwise it will go to slaughter or pass to the steer category.
- **Steer (or bullock)/ox**: An adult bovine over 3 years of age, castrated and tame, that as such can be used for farm work, in which case it is known as an ox.
- **Cow**: The name for a female animal after the first calving (technically called parturition). Just as for a bull, a cow undergoes a period of experimentation. Good reproducers remain with the herd while the rest go to slaughter.

Regarding pasturage, according to ANUALPEC (2003, p. 55), "Brazil has between 105 and 115 million hectares of artificial pasture lands, depending on the source consulted."

1.4. The Scenario and Perspectives for Beef Cattle Ranching in Brazil

The process of economic globalization has heightened competition for quality and productivity, to meet the demands of the markets, both national and international.

Brazilian cattle ranching is extremely competitive. The country has the world's largest commercial herd, with more than 170 million head (see Table1), and the levels of productivity and quality are growing. Brazil is also one of the largest beef exporters, surpassing traditional exporters such as Australian and the United States (see Table 3).

1.4.1 The Domestic Market

In 2004, according to ANUALPEC (2005, p. 53), Brazil had 170,153,519 head of cattle, and 46,977,803 head were slaughtered that same year, corresponding to a slaughter rate of 27.6%, as can be seen in Table 1.

Table 1: Evolution of Cattle Herding in Brazil (head of cattle)

Year	Total Herd	Slaughtered	Slaughter Rate	Calves Born	Births x Slaughtered
1995	154.058.176	36.888.832	23,9%	36.644.549	-0,7%
1996	152.835.009	36.710.977	24,0%	37.097.611	1,1%
1997	154.575.206	33.785.672	21,9%	37.454.808	10,9%
1998	158.267.696	34.262.399	21,6%	39.480.520	15,2%
2000	161.037.074	34.882.658	21,7%	39.296.886	12,7%
2001	165.754.929	35.550.697	21,4%	41.890.581	17,8%
2002	170.287.292	36.797.244	21,6%	43.235.954	17,5%
2003	176.239.431	41.541.519	23,6%	45.457.164	9,4%
2004	170.153.901	46.977.803	27,6%	45.573.565	-3,0%

Source: Adapted from ANUALPEC (2004, pp. 63, 66 and 68) and ANUALPEC (2005, pp. 53, 56 and 59)
(*) Number of head slaughtered divided by total herd size (**) Number of calves born divided by number of cattle slaughtered

Table 1 also shows that the cattle herd grew 10.4% from 1995 to 2004, while the slaughter rate went up 27.3% and the number of calves born increased 24.4%. 2004 was an atypical year because there was greater than normal sale of reproducing cows, nearly three thousand head, which contributed to the increased statistic on animals slaughtered. Excluding this anomaly, the pattern has been for the number of new calves born to outpace the cattle sent for slaughter, thanks to more productive management techniques.

From the start of 2004 to September 2005, the average price per arroba (15 kg) fell from R$ 61.10 to R$ 50.00 in São Paulo, and from 58.20 to R$ 47.00 in Campo Grande, according to FNP Online.

Table 2: Average Price of Beef Cattle by Region (R$/arroba, time payment)

State	2002	2003	2004	Sept. 6, 2005
Sao Paulo (Northwest)	48.8	58.0	61.1	50.0
Mato Grosso (Campo Grande)	46.2	55.0	58.2	47.0
Goiás (Goiânia)	46.1	54.4	57.1	48.0
Minas Gerais (Triângulao Mineiro)	47.4	56.2	59.1	48.0
Rio Grande do Sul	44.1	49.3	50.4	45.0

Source: Adapted from ANUALPEC (2005, pp. 84-85) and FNP Online
[Northwest / Sept. 6, 2005]

The production of beef cattle in Brazil has a long cycle, and is also very sensitive to the population's average income and the price of other meats and poultry. Per capita beef consumption has been generally falling over the years. Whereas in 1995 average consumption was 42.6 kilos of beef per person per year, this had fallen to 36.3 kilos in 2003. This decline can be explained by, among other factors, the high past consumption, due to the Real Plan currency stabilization which brought longstanding and rampant inflation under control in 1994, restoring consumers' purchasing power. After an initial spurt in consumption, changing eating habits and less expensive alternatives, particularly chicken, have eroded per capita beef consumption. The table below shows the evolution of per capita consumption in Brazil and some other countries.

Table 3: Yearly per Capita Beef Consumption (Kg/Person/Year)

Country	1995	1996	1997	1998	1999	2000	2001	2002	2003
Brazil	42.6	42.4	39.0	38.2	36.6	35.7	35.7	35.8	36.3
USA	44.0	44.1	43.1	43.6	44.1	44.3	43.3	44.3	42.8
Uruguay	60.6	67.3	66.3	72.2	71.3	61.2	51.2	49.6	49.8
Italy	26.5	26.5	24.7	25.0	25.5	27.0	25.1	23.3	21.7
China	3.4	2.8	3.5	3.8	4.0	4.2	4.3	4.6	4.7
Japan	12.4	11.7	11.8	12.0	12.0	12.4	11.1	10.3	10.7
Austrália	35.3	38.4	40.7	38.0	38.1	33.7	33.8	36.0	36.3
Rússia	23.0	23.4	23.7	19.4	18.7	15.8	16.5	16.3	16.5

Source: Adapted from ANUALPEC (2004, p. 90)

Table 3 also shows that the traditional beef consuming countries have also seen falling per capita consumption, such as in the United States, Uruguay and Australia, among others. A hypothesis for this is the belief that red meat is bad for health and that white meat is healthier. More recently, there has been fear of mad cow disease (Bovine Spongiform Encephalopathy - BSE).

1.4.2 The External Market

In recent years, Brazil has become one of the world's largest exporters of beef, with the largest purchasers of *in natura* beef being Chile, Russia and Egypt, and of processed beef being the United Kingdom and United States. Some points on Brazil's side have been:

a) worlds largest commercial herd;
b) largely free-ranging cattle – grass fed "green" cattle;
c) combat, control and eradication of diseases – hoof and mouth disease, brucellosis, tuberculosis, etc. and the adoption of traceability and certification;
d) diseases have broken out in European herds;
e) devaluation of Brazil's currency (the real) and appreciation of the euro against the U.S. dollar;

Lopes (2004, p.56) states that:

> Starting in 1996, the country began uninterrupted growth of its beef exports. Thanks to expanded herds and productivity gains, the meat packing industry could satisfy increasing orders, ensuring compliance with contracts, and guarantee the purchase of large quantities in a single order by importing countries.
> One of the big advantages of Brazilian producers is the raising of free-ranging cattle (today dubbed "green" beef), a type of operation traditionally used by more than 90% of cattle herders in the country. The system allows low production costs, perhaps the lowest in the world, making Brazilian beef very competitive in the global markets, especially in those more sensitive to prices, such as the Middle East, Russia, Eastern Europe and Latin America.
> The growth of exports has also been favored by the parallel occurrence of diseases in other countries. This has prevented countries previously

active as exporters from participating in the international market, reducing the competition to Brazilian beef output.

Brazil beat out strong competitors and closed out 2004 as the world's leading beef exporter. Another important fact is the evolution of exports, which grew 467.9% from 1995 to 2004. The table below shows the performance of Brazilian beef and that of some other important countries.

Table 4: World Beef Exports (thousand ton carcass equivalents)

Country	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Brazil	287	280	287	370	541	554	789	929	1.208	1.630
Australia	1.109	1.206	1.184	1268	1.270	1.338	1.399	1.366	1.264	1.300
USA	826	851	969	985	1.094	1.119	1.029	1.110	1.143	202
Canada	245	319	982	427	491	523	574	610	384	540
Others	3.042	3.020	3.038	2.471	2.533	2.403	2.035	2.380	2.395	2.661
Total	5.509	5.496	5.860	5.521	5.929	5.937	5.826	6.395	6.394	6.333

Source: Adapted from ANUALPEC (2004, p. 89) and ANUALPEC (2005, p. 80).

Carcass equivalent is a standard international unit of measurement that aims to make processed meat (without bones) and *in natura* meat (with bones) comparable, i.e., equivalent to the carcass weight (animal slaughtered and cleaned).

The perspectives for Brazilian beef exports are very positive. The country's progress in this trade is impressive, and the effort to increase production and quality is constant. The table below demonstrates global beef herd size.

Table 5: Head of Beef Cattle per Country

Country	1998	1999	2000	2001	2002	2003	2004
Brazil	158.268	161.037	165.755	170.288	175.130	176.239	170.154
India	306.967	312.572	313.774	317.000	323.000	327.250	330.250
China	124.354	126.983	128.663	128.242	130.848	134.672	138.712
USA	99.115	98.199	97.298	96.723	96.100	94.882	94.725
Argentina	49.437	49.832	50.167	50.369	50.869	50.768	49.066
Australia	26.688	27.588	27.720	27.870	27.479	26.600	26.600
Russia	28.600	27.000	25.500	24.510	23.500	22.285	20.995
Canada	13.211	13.201	13.608	13.762	13.488	14.660	15.660
South Africa	13.772	13.580	13.460	13.505	13.635	13.540	13.350
Others Countries	329.084	235.104	229.552	221.921	220.845	170.600	164.435
Total	1.151.494	1.067.095	1.067.497	1.066.191	1.076.896	1.033.499	1.025.951

Source: Adapted from ANUALPEC (2004, p. 84) and ANUALPEC (2005, p. 76).

This table shows that Brazil has the planet's largest commercial beef herd (considering that in India cattle are held sacred by Hindus, and are thus in the main not sold for slaughter).

In general, the external market can be viewed with optimism: Brazil is already one of the world's leading beef exporters. However, the domestic market is cause for some concern, due to the stagnation of prices combined with reduced consumption and increased prices of inputs, making ranchers increasingly concerned about controlling costs, trying to maintain or rebuild margins.

2. GENERAL CONCEPTS OF FINANCIAL ACCOUNTING

All organizations, whether or not for profit, raise and use funds for a purpose, and the same goes for individuals. These funds can be the person's or entity's own or obtained from third parties – loans, investments, etc. To work more productively, the people involved in the process need a wide range of information, such as the amounts involved and used in their dealings, money available, needs for working capital, amounts taken as loans and their due dates and current adjusted values, the results obtained from using these resources and future perspectives.

Accountancy, no matter the size, purpose or legal nature of an enterprise, has the function, among others, of keeping a basic file of information and making it available to the entity's internal and external public. It allows the user to better understand the structure, current position and future perspectives for the business. This, accounting's importance is to provide its various users with useful information, in summarized and ordered form, to support decision making.

Accountancy is defined by Franco (1997, p. 21, our emphasis) as:

> *The science that studies the phenomena occurring in the equity of entities, through recording, classification, expositive demonstration and analysis and interpretation of these facts,* ***with the purpose of offering the information and guidance necessary to reach informed decisions*** *on the composition of the assets, their variations and the profits or losses from managing them .*

Iudícibus, Marion and Pereira (2003, p. 51, our emphasis) define accountancy as follows:

> *From the user's point of view, it is a* ***system of information and evaluation to provide its users with statements and analyses of the economic, financial, physical and productivity aspects, especially of the entity that is the object of the accountancy.*** *Regarding its subject matter, it is a patrimonial science, which evidences the quantitative and qualitative variations in worth. Taking an overall view, it is a science that records and evaluates how and how well the entity has used the resources entrusted to it.*

Note in the definitions the concern in relating accountancy with the supply of data, information, analyses and orientations, with the objective of assisting managers to make correct decisions. The definitions also show the preoccupation for the study of equity, its variations and how resources are used, as well as on the process of registering and evaluating accounting facts. But this information must be adapted and aimed at the type of business the entity carries on and to the persons who will make decisions.

2.1 The Objective of Accountancy

Accounting is known as the language of business and the better the user of accounting information knows this language, the better will be his or her decisions. But what is the objective of this science – what does it intend to attain?

Marion (2003, p. 26) states that the main objective of accountancy is "to permit each main group of users to evaluate the economic and financial situation of the entity, and to make *inferences* about its *future trends*."

Iudícibus (2000, p. 28, our emphasis), says:

> *The main objective of accountancy (and of the reports it produces) is to supply relevant economic information so that each user can make informed decisions and judgments. This requires knowledge of the user's decision-making process, and it is necessary to question the user about what information is deemed relevant or what goals are most important, in order to delineate the pertinent information. Although the basic financial information based on the main periodic reports must satisfy the basic needs of a good number of users,* ***accountancy also must have the flexibility to furnish differentiated types of information to special users or for making specific decisions****.*

The objective of accountancy, then, is to supply useful information to users, to enhance their judgment and enable them to make better decisions at the moment, and to evidence the financial and equity position of the entity in focus at a determined moment, as well as to project future positions. There are various users who need accounting information: owners, investors, employees, clients, suppliers, financial institutions, the government and the public in general.

2.2 Definition and Application of Livestock Accountancy

Accountancy can be applied generally to all entities (companies, individuals, charitable institutions, governments, etc.), or specifically (in a certain field of activity). Marion (2002, p. 25) explains that "when studied generically, accountancy is called general accountancy or financial accountancy. When applied to a specific field, it is normally denominated according to the activity of that field." Hence, we can say that rural accountancy is general accountancy aimed at rural entities and livestock accountancy is accountancy aimed at livestock operations.

According to Iudícibus, Marion and Pereira (2003, p. 52), "Livestock accountancy is the branch of general accounting applied to livestock activities, generally of large domesticated animals." Livestock accountancy, just as accountancy in general, harks back to the dawn of civilization, where men used it to count their herds.

Marion (2003, p. 13) says that:

> *The origins of accounting go all the way back to primitive man counting (inventorying) his flocks. Man, whose nature is ambitious, was not only concerned with counting his flock, but – what is more important – with its growth, and consequently with the evolution of his wealth. Thus, he made inventories (counts) at different moments and analyzed the variation in his wealth.*

Accounting is important not only for the information it offers, but also for control and measurement of the evolution of the wealth of the person or entity that uses it. Cella (2002, p. 40) affirms that "a good rural producer controls his expenses and knows how to analyze the data gathered to learn the profit obtained from each activity. A good rural producer always has a system of control, even if merely a simplified system of keeping track

of the inflow and outflow of cash." In this sense, Neves (2001, p. 88), reports that "the search for quality of information has become necessary today because stock raising is not as profitable as it was in the past, and as in any other type of business, it must be well managed, as well as demanding trained personnel."

Livestock herding needs a range of information that accounting can provide, both of an economic-financial and physical-quantitative nature, all of which are essential to measure the performance of the business.

2.3 Accounting Reports and their Utility

An accounting report, according to Marion (2003, p. 39) is "the summarized and ordered exposition of the data gathered by accountancy. Its objective is to report to accountancy's users the main facts registered for a determined period." Thus, an accounting report is the final product of an accounting process and the set of these reports is called the financial statements. The financial statements, according to Law 6404/76, Article 176 (BRASIL, 1976), consist of:

- Balance Sheet;
- Statement of Retained Earnings;
- Statement of Income;
- Statement of Changes in Financial Position; and
- Notes to the Financial Statements.

These statements, required by law of corporations, and others that are not mandatory, such as cash flow, budget, control and performance indicators, all aim to help the various stakeholders of an organization to understand it better. Chart 1 illustrates the basic composition of the financial statements:

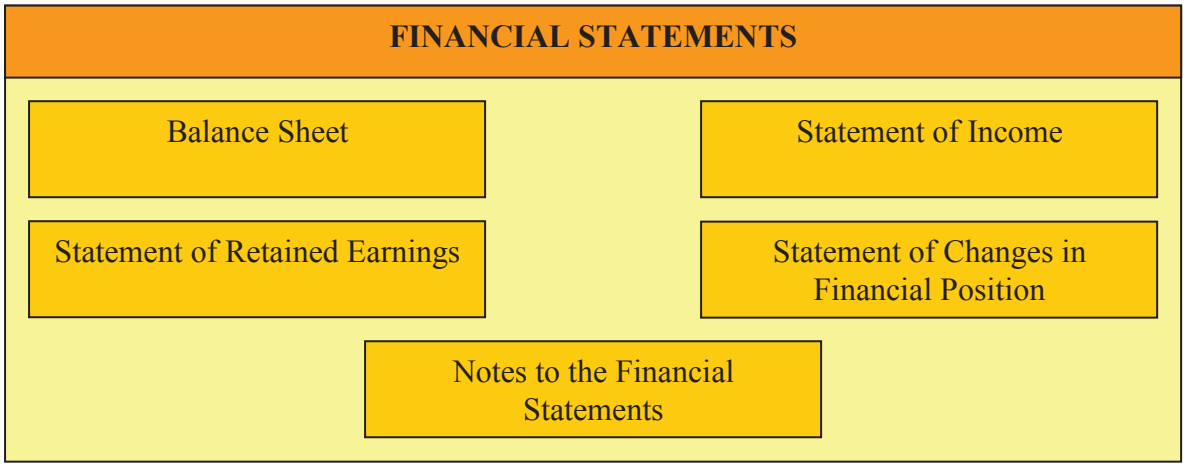


Chart 1: The Financial Statements
Source: The authors.

The accounting year does not have to correspond to the calendar year, instead often depending on the seasonal nature of the business or other considerations. Also, accounts can be prepared at shorter intervals. The purpose of the notes is to explain information that might not otherwise be perfectly clear and that need greater details.

3 FIELD SURVEY

The goal of the survey was to get an idea of how accounting reports and information, and accountants themselves, are used by beef cattle ranchers in making their decisions. It also aimed to learn the opinion of accountants on how their profession can help ranchers, and rural administrators in general, even more.

3.1 The Survey Venue

The survey was applied in the municipality[1] of Nova Andradina, in the state of Mato Grosso do Sul. Nova Andradina is located 300 km from the state capital, Campo Grande, and has a population of 36 thousand, spread over an area of 4,788.20 km^2. It is the eighth largest municipality in the state in ICMS (state VAT) revenue collection and in population, and is on the main route for outflow of the state's products to the states of São Paulo and Paraná. It is known for its beef export potential, through two large meatpacking operations, with another slaughterhouse under construction with capacity of 200 head per day. It is thus no exaggeration to call it the state's "**Beef Capital**".

The state of Mato Grosso do Sul has 22 million hectares of pasture lands, of which 16 million are planted and 6 million natural. Its cattle herds amount to nearly 20 million head, top in Brazil, and it has 51 beef packing houses, of which 35 fall under federal inspection and 16 under state inspection.

3.2 Survey Population

According to Megliorini (2004, p. 20), from a statistical perspective, "population is the totality of the elements that have certain common characteristics of interest to a study." The population for this survey was all the accounting firms registered with the Regional Accounting Council of Mato Grosso do Sul (CRC/MS) headquartered in Nova Andradina. The universe studied consisted of one limited liability company and fifteen individual firms (sole proprietorships). Of the seventeen firms contacted, twelve responded to the questionnaire, two stated they did not work with livestock accountancy and four did not respond.

The survey was conducted in January and February 2005, and the questionnaire was distributed by e-mail, containing fifteen open and closed questions, besides data on the respondent.

3.3 Tabulation of the Survey

The questionnaire (Appendix) sought to understand better the profile of the accountant and the users of the information provided, to detect which accounting reports are most often used and whether or not accountancy is employed for making decisions.

The first result regards the respondents' training. All said they were bookkeepers rather than accountants per se, meaning they have technical training rather than college degrees.

[1] A municipality is roughly equivalent to a county, except the political administration is that of a city, with a mayor and municipal council. It is the basic local political unit throughout Brazil.

Regarding the number of clients that operate in beef cattle ranching, the survey showed that the majority of offices had up to 10 clients (5 offices), but one office responded it had between 126 and 150 clients, and one had over 200, as shown in Table 6:

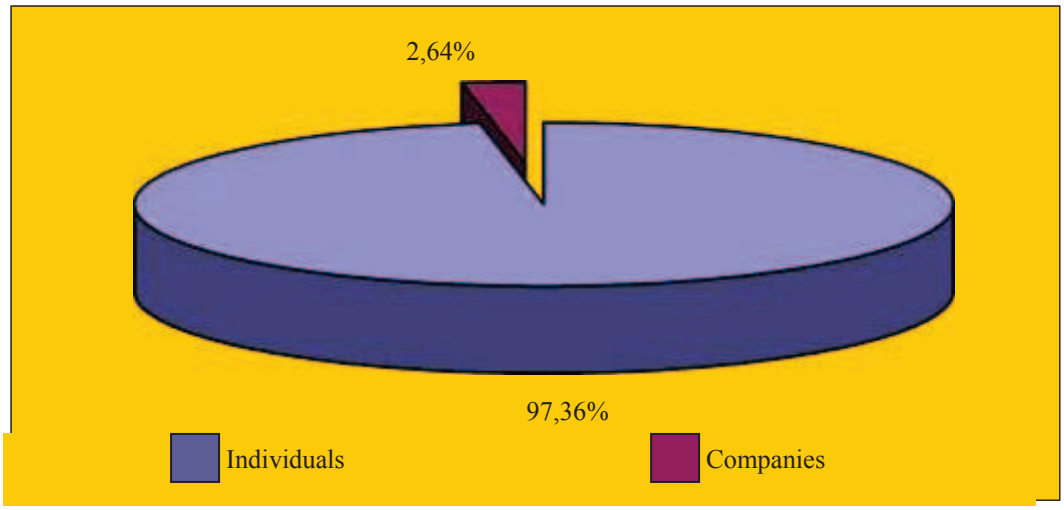
Table 6: Number of Clients per Accounting Firm

Number of Accounting Firms	Number of Clients per Firm	%
5	Up to 10 clients	50
3	11 to 25 clients	30
1	126 to 150 clients	10
1	Over 200 clients	10
10	Total Respondents	100

Source: The authors.

Regarding the total number of livestock ranchers served by the respondent firms, we can infer the total was 417 clients or rural properties.

The responses obtained showed that in the great majority of cases, the ranching operation was controlled directly by an individual rancher. Of the 417 livestock operations, 406 (97.36%) were controlled by a single individual, and 11 (2.64%) were company operations, as shown in Graph 1.

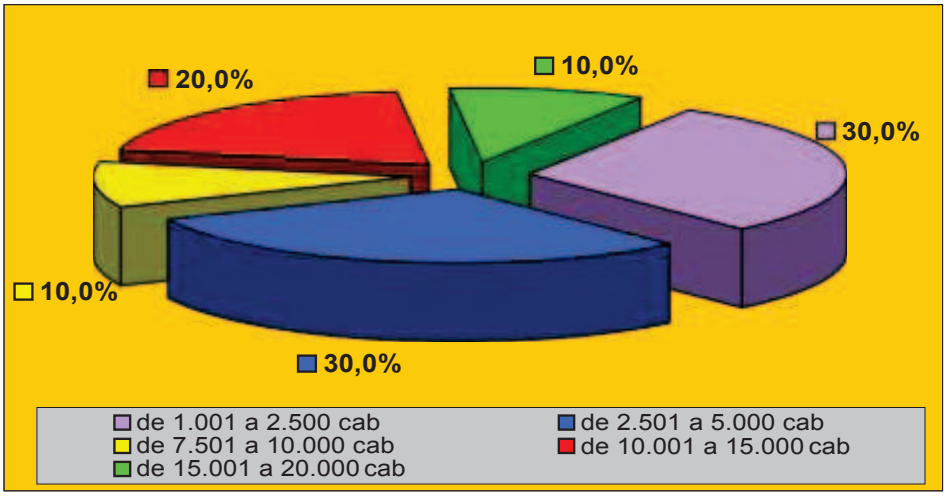


Graph 1: Percentage of operations controlled by individuals and companies.

The preference for control by an individual is justified by lower taxes and also by less bureaucracy.

The responses showed that 40% of the offices had clients with yearly gross revenues between R$ 501 thousand and R$ 5 million, and that the average area devoted to beef cattle was between 1,001 and 5,000 hectares. Also, the predominant specialization of the client ranchers was integrated: breeding, raising and finishing, as defined earlier.

The herd size was addressed with the following question: What is the herd size of your largest client? (in number of head). The responses showed that 30% of the accountants had clients with between 1,001 and 2,500 head, 30% had clients with between 2,501 and 5,000 head, 10% had clients with between 7,501 and 10,000 head, 20% had clients with between 10,001 and 15,000 head, and 10% had clients with between 15,001 and 20,000 head of cattle.



Graph 2: Number of head of cattle of largest client

Thus, we can conclude from the data on herd size and land area that the survey took in not only small and medium ranching operations, but also large ones.

On the question of accountancy itself, the survey found that 90% of the respondents reported that their clients perform physical accounting control of the animals, with 50% stating that the clients counted and appraised the value of their herds monthly, at market value, by multiplying the number of animals in each category by the current market price. Any calves born were accounted for as superseding assets.

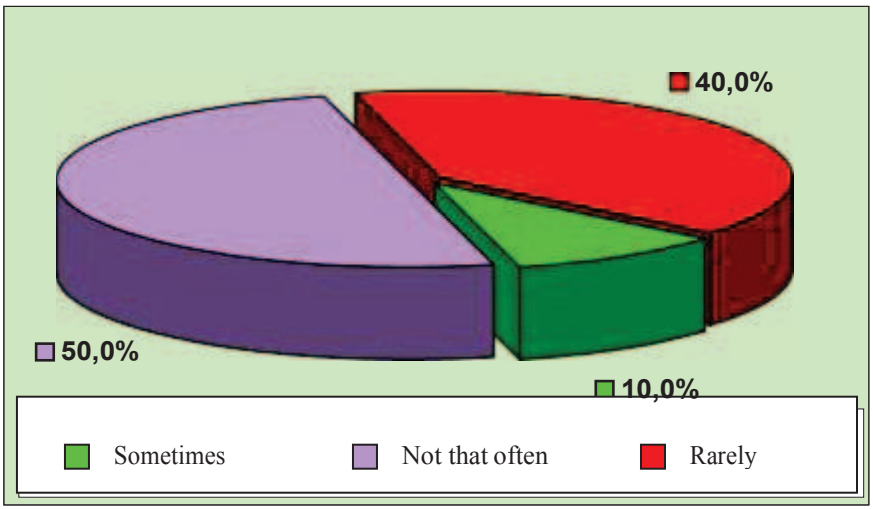
To find out what accounting reports were prepared, the following question was posed: What accounting reports are provided to the majority of your clients? The responses are compiled in Table 7:

Table 7: Reports Provided by the Accountants to their Clients

Type of Report	Number of Citations per Respondent	%
Balance sheet/trial balances	0	0.0
Income statement	4	21.1
Cash flow statement	5	26.3
Statement of changes in financial position	0	0.0
Inventory and valuation	5	26.3
Management trial balances	0	0.0
Budget	0	0.0
Tax simulation	0	0.0
Financial performance projections	2	10.5
Average cost per head	3	15.8
Number of citations	19	100.0

Hence, the physical inventory or livestock movement and appraisal, along with cash flow, were the accounting reports most often cited, followed by the statement of income, and the trial or full balance sheet were not mentioned at all. The next question addressed how often the reports provided were used.

The survey found that for 50% of the responding offices the accounting reports they provide are utilized with low frequency by their clients, while 40% stated that they were rarely used and 10% said the reports were consulted with a certain frequency. Graph 3 shows this result:



Graph 3: Frequency of Use of Accounting Reports

When questioned about management reports and controls, the firms responded that they did not provide any of these to their clients. It should be remembered that management reports are those that are used internally by managers, and are not disclosed to outsiders. Regarding the use of control and performance indicators, such as rates of birth and death, theft (rustling), herd growth, etc., only one respondent reported having been asked to prepare the rate of slaughter, which is found by dividing the number of animals sold to abattoirs by the total herd size at the start of the period.

The penultimate question was formulated to discover whether at the moment of making an important decision, such as on the purchase of land, taking out a loan, forming a partnership or leasing land, etc., the accounting information or even the accountants themselves were consulted. The answers to this question were evenly split: 50% of the accountants responded in the affirmative and 50% in the negative. However, the justifications or comments of some accountants showed that those who were consulted were asked to give opinions only on tax questions. Unfortunately, they were never called on to advise on business design, if it was the best time to proceed, if there was enough working capital to sustain the deal and if the return would be as expected.

3.4 General Comments on the Survey

In summary, the survey found that all the respondents were bookkeepers, without university training, that the majority of the ranchers controlled their businesses directly, not in the form of companies, and that they were involved in all steps, namely breeding, raising and finishing. Finally, most of the rancher clients paid closest attention to the herd size, new calves and market value of animals, and did not adopt a formal cost apportionment system.

Regarding accounting reports, the most often provided were cash flow, physical control of stock and income statement, but these are not used assiduously be the ranchers. The respondents also showed that they and their accounting reports are consulted only with regards to tax issues, not on overall business decisions.

4 THE CONTRIBUTION OF ACCOUNTANCY

The regular use of accountancy provides managers with reports, such as balance sheets, that show the financial and equity position at a determined moment, by showing the

current value of the livestock, lands, improvements and machinery. The income statement can also be used, to show objectively and logically the result of ranching activity in a certain period, as well as the profit margin, business expenses, taxes paid, etc. The cash flow statement is also very familiar to rural producers. Another contribution of accountancy involves the separation of activities inherent to the business from private activities, since in rural settings the workplace is typically the ranchers own home and the overhead winds up being mingled with household expenses. It is hard to separate the part of the water, power and telephone bill, for example, due to family use from business use, or the costs for fertilizer for pasturage versus family subsistence plots.

The adoption of professional accounting brings more support for decision making, since in times of globalization, Brazilian livestock raising is straddling two worlds. One of them is experiencing boom times, with healthy international prices, and the other is suffering with falling domestic prices and higher production costs. According to Salomão (2004, p. 56), when doing a quick calculation of the costs and gains of a herd, ranching appears to have very small margins, as shown below:

The profitability of selling beef cattle			
When the costs and gains of the herd are calculated by hand, cattle ranching appears to have low margins, as shown below:			
1,200 reais	380 reais	800 reais	20 reais
This is what the rancher gains on average on the sale of one fattened animal.	Average price of buying a calf.	Cost to raise and fatten the animal for 18 months, including vaccination.	The return per animal will be 1.7%
Amounts in the São Paulo market in September 2004			

Chart 2: Profitability on the sale of beef cattle.
Source: Adapted from Scot Consultoria, in Salomão (2004, p. 56).

Chart 2 shows that the return per animal sold is 1.7%, or R$ 20.00 over an 18-month period. ANUALPEC 96, cited in Cantarino (1998, p.1) backs this: The cost of producing an arroba (15 kilos) in the 1970s rarely surpassed 30% of the sale price, but today this figure rarely falls below 70%. This has been occurring because the domestic market price has been declining and production prices rising. According to Salomão (2004, p. 56), the prices on selling a fattened steer have fallen 2% in the domestic market and the prices of inputs have risen nearly 8%.

Therefore, the use of accounting information, besides showing the margin and profitability, can help control costs and indicate possible bottlenecks. Accountancy in agribusiness is important both to identify problems and to evaluate and choose the best alternatives to solve them.

It is important to mention that regardless of whether the activity is controlled by a single individual or a company, accountancy should be used as an instrument to assist management. In the final analysis, knowing and understanding the enterprise, and being equipped to make more precise inferences about the future, in a dynamic and competitive market such as this, is of inestimable importance to the efficiency of the business.

5 FINAL CONSIDERATIONS

Brazilian livestock raising has been growing by leaps and bounds, putting the country among the world leaders in meat output. In this situation, there is an inevitable need for good controls, to verify the growth and indicate possible ways to leverage results. Accounting is by its nature the right path for the manager to follow to achieve success, because besides showing the financial situation at a certain moment, it shows where costs and expenses are consumed and how they can be controlled, and it also helps show the way to the future, through projections, supporting the planning process.

The survey showed that accounting information, and accounting professionals themselves, in the region studied, are underused by managers at the moment of making decisions. The activities are instead managed by practical experience, acquired over the years. This is strong evidence that managers in this sector are not aware of the possibilities of accountancy.

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APPENDIX – QUESTIONNAIRE USED

Name of Respondent:_____ **Position:**_____
Name of Accounting Firm:_____
Address:_____ **District:**_____ **City:**_____ **State:**___
Telephone: ( )_____
E-mail:_____
Training: ( ) Accountant ( ) Bookkeeper ( ) Other _____

1. How many clients do you have whose main activity is beef cattle ranching?
( ) up to 10 **( )** from 11 to 25 **( )** from 26 to 50 **( )** from 51 to 75 **( )** from 76 to 100
( ) from 101 to 125 **( )** from 126 to 150 **( )** from 151 to 200 **( )** more than 200

2. Of the clients above, in percentage terms, what percentage are companies, individuals or others?
_____**%** Company _____**%** Individual _____% Others
Which?_____ Why?_____

3. What is the average revenue from selling fattened cattle of your clients in 2004 2004? (in reais)
( ) up to 50 thousand **( )** from 51 to 100 thousand **( )** from 101 200 thousand **( )** from 201 to 500 thousand
( ) from 501 to 1000 thousand **( )** from 1001 to 5000 thousand **( )** over 5000 thousand

4. What is the land area used for beef cattle ranching of the majority of your clients?
( ) up to 10 ha **( )** from 11 to 50 ha **( )** fro, 51 to 100 ha **( )** fro, 101 to 1.000 ha
( ) from 1001 to 5000 ha **( )** from 5001 to 10,000 ha **( )** over 10,000 ha

5. What type of cattle activity is practiced most by your clients?
( ) breeding **( )** raising **( )** finishing **( )** breeding and raising **( )** raising and finishing **( )** all three **( )** others
Which?_____.

6. What is the herd size of your largest client? (in number of head)
( ) up to 1000 **( )** from 1001 to 2500 **( )** from 2501 to 5000
( ) from 5001 to 7500 **( )** from 7501 to 10,000 **( )** from 10,001 to 15,000
( ) from 15,001 to 20,000 **( )** from 20,001 to 25,000 **( )** over 25,001

7. How do your *average* clients control their livestock inventory?
( ) monthly count ( ) twice-yearly count ( ) yearly count ( ) no type of control ( ) Others
Which?_____

8. How is the stock of animals valued at the end of a determined period, by the majority of your clients?
( ) Cost method **( )** Market value method **( )** Others Which? _____

9. How do most of your clients, at the end of a determined period, value the number of births?
( ) Market value **( )** Average cost per head **( )** Average cost of reproducers **( )** Others
Which?_____

10. What accounting reports are provided to the majority of your clients?
( ) Trial balances **( )** Income statement **( )** Cash flow statement **( )** Statement of changes in financial position
( ) Physical inventory and appraisal of animals **( )** Management trial balances **( )** Company budget **( )** Simulation of taxes (PIS, IR, INSS, etc.) **( )** Projected financial statements
( ) Average cost per head **( )** Others Which ?_____

11. Do you think the reports indicated above are often used to manage your clients' businesses?
( ) often **( )** sometimes **( )** not that often **( )** rarely
Why?_____

12. What management controls, if any, do your clients request?
_____

13. Do any of your clients request calculation of indicators, or prepare them themselves? ( ) Yes ( )No
If yes, which are used most: ( ) Birth index ( ) Death index ( ) Yield index
( ) Density ( ) Cow/bull ratio ( ) Slaughter rate ( ) Theft rate ( ) Herd growth ( ) Others Which?

14. At the time the rancher makes a decision, such as to buy or sell land or animals, to lease land, enter into partnership deals, take out loans, etc., is accounting information, or the accountant in charge of the client, consulted?
( ) Yes ( ) No Why?_____

15. In your opinion, how could accounting facilitate reaching a decision by a beef cattle entrepreneur?