

## UNDERGRADUATE AGRIBUSINESS PROGRAMS: A DEBATE ABOUT THIS NEW PROFESSIONAL FORMATION

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### ABSTRACT

With the increased supply of superior agribusiness courses in Brazil, it becomes important to further discuss the training of this new professional. This article intends to contribute to this debate, to do so, it shares, as a starting point, the results of a broad bibliographic review, delimiting the field of study called agribusiness, as well as clarifying the worldwide state of discussions about the professional training of graduated students in this area. Seeking to define what characteristics a professional in this area must possess. Based on these characteristics, a series of recommendations were drawn up for coordinators of these courses to be prepared. Finally, some prerequisites were numbered, which can contribute to building quality courses in this new area of knowledge.

**KEYWORDS:** Higher education. Human resources. Curriculum. Agribusiness management.

### 1.INTRODUCTION

In recent years, the emergence of a large number of higher education courses in Agribusiness is noticeable in Brazil, which apparently comes up to meet an avid market demand for this kind of professional. However, on the other hand, it appears that these courses are indeed different from one another. It seems that, each course has its own view of what Agribusiness is. These are the perceptions which build this article.

The term agribusiness (which was translated in Brazil to “agronegócio”) was developed by Davis and Goldberg in 1957 as being the total sum of operations of production and distribution of agricultural supplies; operations of production on agricultural units (farms); and the storage, processing and distribution of agricultural products and items made from them. The term agribusiness, as proposed by Davis and Goldberg (1957), appears to define an economical approach developed by the researchers.

Over time, the term is incorporating new connotations, and it is even being used as a panacea for rural problems. The fact of acquiring new meanings, in itself, is not configured as a problem, and may in some cases even be positive, for example, when the term "agribusiness" is used to gather a large group of people and institutions to require public policies for a sector of

the economy. The problem comes into existence from the moment a more accurate conception is necessary, as in the case when it is used as a field of study.

In this lies the guiding hypothesis of this article, when migrating from an economic approach (which is relatively easy to define) to a field of study (inherently complex), many problems arise.

As a starting point, in this article, when the term "agribusiness" represents a field of study, it will be regarded as a proper noun and written as such (Agribusiness). Having made this observation, the main question now emerges. What should be taught / learned in the training of a professional in Agribusiness? That is an epistemological problem to be solved. Surely this migration (economic focus / field of study) does not occur naturally or automatically, it is permeated by personal desires, worldviews, political struggles, regional influences, in short, the definition of what should be taught (curriculum) is a social construction.

Although in other countries, these debates have already occurred for some time, especially in the United States where these discussions began in the early 1960s, in Brazil, these are still at an early stage, with few researchers and educators leaning over this theme, giving emphasis to the works of Batalha and others (2000); Batalha and others (2005a); Batalha and others (2005b); Begnis, Estivaleta and Silva (2007); Rinaldi, Batalha and Moura (2007) and Rinaldi, Batalha and Mulder (2008).

Surely, this stems up from the courses short time of existence for this field of study. Begnis, Estivaleta and Silva (2007) reported that by the end of the 1990s, the offering of training courses in Agribusiness concentrated only in post-graduation courses (specializations). However, the same authors found out that in 2005, there were 140 higher education courses in Agribusiness being offered by institutions of higher education, which demonstrates the rapidly growing interest in the training of these professionals.

Inserted in a context where, on one hand, there is exponential growth in the supply of higher education courses in Agribusiness and, on the other, there is the paucity of debate about the formation of this professional, this article aims to, through a literature review, check what has already been discussed, worldwide, about the formation of this professional and systematize this discussion, to support the development of new courses or to improve the already existing ones.

## **2. AGRIBUSINESS AS A STUDY FIELD**

An interesting starting point to define which curriculum components are required to form a professional in Agribusiness is the semantic origin of the term, which is the junction of the prefix "agri" (which refers to the issues of rural field) and the word "business" (which refers to commercial issues, trade). Thus one can assume that when it comes to agribusiness, semantically, it refers to several commercial relationships that are established on the basis of a product of rural origin.

However, there are a number of fields of study that already study both topics related to "agri" (eg. Agronomy, Animal Science, Forestry, Agricultural Engineering), the same, relating to business (eg. Administration, Marketing, Logistics ). But, it turns out, empirically, that these professionals are unable to meet the growing demand for a professional who works in agribusiness.

This is due to the unique characteristics of agriculture, which greatly influence its industries to its downstream, and supplier industries.

Ramos (2007) summarized his work on the specific characteristics and / or differences between the productive aspects of agriculture and industrial sectors, which can be considered as major:

a) Agriculture is reproductive, ie, it can be stated that its ability to supply is inexhaustible because it depends essentially on, theoretically, endless natural resources (sunlight, soil, water) and human labor.

b) The agricultural production is strongly influenced by natural conditions, meaning , it depends on nature, both on the structural (water availability, soil fertility, climate) and on cyclical aspect (annual weather patterns, drought, frost, hail)

c) The seasonality of production is another agricultural intrinsic characteristic, which directly influences its industry and downstream industry because, as in general, the demand is constant, it is necessary to load stock.

d) Each agricultural product has a specific production cycle, determined by biological conditions, the existence of this cycle requires a higher initial investment until production flow starts. These cycles may be shorter (horticulture, poultry) or longer (cattle, forestry).

e) The primary goods prices are more flexible when compared to industrial goods and services sector.

f) Due to the characteristics mentioned above, in general, agricultural activities are strongly subject to two types of risks, production risks (related to natural questions) and price risk (related to economic conditions).

g) Large scale economies are widely perceived in agricultural activities, differently from industry, the greater size of the agricultural establishment doesn't mean a lower cost of production.

h) Partly, this is due to the difficulty of applying the principle of labor division, caused by biological cycles, in which case, much of the hand labor is idle between planting and harvesting. Thus the joint production of some agricultural goods is justified.

i) Thus, economies of scope or horizontal integration are more important than scale economies.

But the growing integration between the agricultural sector and the industrial sector, with the advent of the agroindustrial complexes, well explained by Kageyama (1990), makes the industry try to impose many of its features on the countryside. Hence the constant decrease of biological cycles of agriculture (genetic enhancement, hormone use) and higher control of

natural conditions (plasticulture, animal confinement, irrigation, fertilization). But the agricultural and agroindustrial sector to its downstream, still differ much from the other industrial sectors.

In turn, Sonka and Hudson (1989) list five characteristics that separate the agribusiness sectors from other industries, a) cultural and institutional policies related to food only, b) the uncertainty related to the biological basis underlying plant and animal production, c) unconventional goals and forms of political intervention across sub-sectors and between nations in an increasingly global industry, d) institutional arrangements that put significant portions of the process of technological development under the public sector power and f) competition structures differentiated within and between sub-agribusiness sectors.

But in addition to the features mentioned here, the Brazilian countryside still has at least three dimensions that must be considered when considering the formation of a professional who will work with this institutional environment, which are the cultural, social and environmental. With the sole purpose of exemplifying, in relation to the environmental dimension, one can cite the growing environmental regulation and its impact on agriculture, in relation to social environment, land concentration in Brazil and the problems derived from it (social movements, rural poverty, etc.. ) and on the cultural dimension, the fact that most Brazilian farmers (especially those with low family technification) do not consider their farms only as a business but as a form of social reproduction, a fact which directly influences their decision-making.

When considering the characteristics of agribusiness hitherto mentioned in this text, it is inferred how complex the field of study called Agribusiness is, which includes inside it, different sectors of economy (agriculture, industry and services), and several products as their chain components (eg. grains, meat, rubber, wood) in its different dimensions (economical, cultural, social, environmental, political, ethical).

Surely these characteristics and / or unique aspects of agribusiness justify the need to train competent professionals, to handle what Begnis, Estivalet and Silva (2007) called " a so complex and interdisciplinary field of study" and that Borsatto and others (2005 ) called "agrocomplexity."

Thus, it appears that a key point to be worked on professional training in Agribusiness is to encourage the development of a holistic and systemic view of reality in which this professional will work, taking into consideration the unique and characteristic aspects of this field of study, as well as fostering the innate respect for diversity in its broadest sense, since these professionals will be faced with different cultures, social classes and economic sectors.

### **3. PROFESSIONAL TRAINING IN AGRIBUSINESS**

Since the early 1960s, a large number of initiatives, involving academia and business environment, have been conducted, mainly in the United States, in order to discuss education in Agribusiness (Boland and Akridge, 2004). Much of this debate is based on North American research carried out with agroindustries, which had the interest of understanding the profile of the professional coveted by these companies.

The first extensive research with this approach was published by Litzenberg and Schneider (1988). Entitled Agribusiness Management Aptitude Skills Survey (AGRIMASS), this survey interviewed 543 companies and identified which features, "interpersonal" and "communication", were most valued by agribusiness companies.

Since then, a large number of studies with similar methodologies, but with narrower scope (WOLF and SCHAFFNER, 2000; Wachenheim and Lesch, 2004), were also conducted and all reached conclusions quite close to Litzenberg research and Schneider (1988). They concluded that for agribusiness employers, the most important skills and knowledge for future hires fit on the topics "interpersonal skills" (high moral and ethical standards, initiative, positive attitude, ability to work in teams) and "communication skills" (oral communication, written communication).

According to Boland, Stroade and Lehman (2001), at least 13 different studies published in reputable scientific American journals reached similar conclusions.

In two studies conducted in Brazil, which used similar methodologies to the American researches, Batalha and others (2000) and Batalha et al (2005b) came very close to the results found by surveys conducted in the United States.

In a research published by Boland and Akridge (2004), which he interviewed a focus group, composed of 26 senior executives from companies or institutions linked to agribusiness in the United States, on the necessary skills for future leaders of their companies, it was found, that virtually all respondents expressed that the most important demanded skills were "critical thinking" and "interpersonal communication" ability. All these studies, conducted by the business environment, have made clear that the most valued skills by agribusiness companies, when hiring a new employee, are characteristics related to personal or interpersonal relationship and communication. The skills and knowledge related to management or farming techniques lose importance in the companies view.

It is noteworthy that, in the author's view, the concerns of the business community should not be the only ones to define what the curriculum to train professionals in Agribusiness should contain, but certainly the opinion of this social segment should be considered in this debate.

In the previous section we inferred that because a segment with unique characteristics, agribusiness needs professionals from different fields to deal with their specificities, contradictorily, this item, analyzing the demands of business environment, appears to imply that these may be offered by any traditional undergraduate course in both study fields, business or land.

Instead of considering these facts as contradictory, it's concluded here, that they must be addressed as complementary. Thus, in addition to forming a professional with a holistic and systemic reality of the environment in which they operate, with innate respect to diversity and who understands the unique characteristics of agribusiness, this future professional must experience during their training process, a set of experiences fostering the skills and knowledge desired by the business world.

Table 1 is based on the total of consulted bibliography, it presents an effort of the key features synthesis, necessary for a trained professional in Agribusiness.

**Chart 1 – Needed characteristics for a professional graduated in Agribusiness.**

1. Systemic view
2. Knowledge of the specifics of agribusiness
3. Respecting and valuing diversity
4. Critical Thinking
5. Strategic Vision
6. Ability to express themselves well orally and in written form
7. Knowledge of how to explain technical information in a clear way
8. High moral and ethical standard
9. Initiative
10. Working Group
11. Flexibility. adaptability
12. Persuasive communication and negotiation skills
13. Leadership
14. Criativity
15. Cope with stress
16. Know how to use softwares in general

It seems that, somehow, the features that a professional in Agribusiness must possess were defined, the question now is how to help higher education institutions to build this professional. In other words, what will the courses, that purport to train professionals in Agribusiness, do to train graduates with these characteristics?

#### **4. RECOMMENDATIONS TO COURSE MANAGERS**

Around the world, Agribusiness degree courses have already been taught for some time, to consult and understand the paths by which these courses took, analyzing their experiences, certainly contributes to building a frame, from which it is easier to develop and improve our higher education courses in Agribusiness.

It is based on studies of this framework that this item lists the main recommendations to course managers in Agribusiness.

#### **Niche strategy**

In Boland and Akridge's (2004) perception, undergraduate courses in Agribusiness must have a solid niche strategy, which adds a differential, otherwise they will perish. In the

argument of these authors, as it is a very wide and dynamic field of study, it is important for course managers to define a specific focus, that will add a competitive edge to its students.

This cut towards specialization can be defined in terms of an agribusiness chain (eg. grains, rubber, meat), or a sector of the economy (industry, services), or socioeconomic characteristics (family farmers, multinational companies).

A niche strategy would add an intense focus on human capital formation for a specific sector, increasing the chances of actual employability of graduates.

Agribusiness courses must be clear in its strategic definition, which agribusiness segment they are preparing their students for, this means, for example, that some courses train students to opt for large multinational companies, others to meet the needs of smaller local or regional businesses.

### **Interdisciplinarity**

An undergraduate degree in Agribusiness must be more than the aggregation of a collection of disciplines, to be valued by the market.

Agribusiness has a number of special features that set it apart from the other sectors, it is essential that the Agribusiness courses prepare students to deal with these specificities. This is not possible, by simply joining teachers and disciplines with their expertise.

To overcome this problem, the suggestion of a number of authors (COLLINS and DUNNE, 1996; Boland and Akridge, 2004; RINALDI, BATTLE and Mulder, 2008) is for courses to provide students with the opportunity to have a range of different experiences (eg. extra-curriculum courses, internships, special projects, junior companies, case studies, simulations, group activities).

The big challenge is to incorporate political-pedagogical projects, as well as course curricula, teaching and learning spaces that provide students with this diversity of experiences. These empirical problematizing experiments, should be seen as the core curriculum, integrating the disciplines themselves around them and not be treated in marginal spaces (as it currently occurs in most courses).

Another dimension to be considered is the need for greater cooperation and integration between the content taught (disciplines and / or activities). This provides key concepts reinforcement, critical thinking, and the chance for students to apply the knowledge gained.

### **Solid background in Economics**

The Agribusiness graduates will face a wide range of issues related to public policy, macroeconomics and international issues. For Boland and Akridge (2004), a solid background in economic theory is needed so that these professionals can understand and manage these issues properly.

This training, however, needs to be contextualized. They should be discussing topics such as agricultural protectionism by developed countries, production losses, environmental issues and their impact on the production process and trade issues, the process of globalization and its impacts on sources of supply, the development of emerging countries and the impact on consumption of food. Always seeking to reconcile economics with organizational environment of agribusiness.

### **Engagement with companies**

The engagement of the business community with educational institutions is of fundamental importance to develop a set of unique experiences for students in Agribusiness. Moreover, as mentioned by Boland and Akridge (2004), a niche strategy can only be supported with a strong partnership with business environment.

School-company integration constitutes a two-way street, as the industry has a lot of experience and empirical knowledge that can be offered to students, as well as, on the other hand, the institution of higher education has the potential to offer a theoretical framework that can be assimilated by companies to improve their production processes. It is further considered that, by investing in partnerships, the industry contributes to the training of professionals with specific expertise to meet their demands.

### **Institutional partnerships**

For students to have the opportunity to have access to diverse views and thus develop a more holistic and systemic view, it is important for educational institution to value the achievement of institutional partnerships, either with other educational institutions or with extension, representation or research institutions.

With that, students have the opportunity to take courses at other universities, participate in research projects not included in their organization, and get in touch with the reality of the sector in which they intend to act.

The benefits would not be exclusive to students, since teachers could also benefit from these partnerships, sharing teaching materials, exchanging experiences with peers, developing inter-institutional research, having greater access to information, among other potential benefits.

### **Professional development and faculty diversity**

Being Agribusiness a study field that values and demands from their professional respect for diversity and interdisciplinary interpretation of reality, it is important for students that take courses in Agribusiness to have the opportunity of taking lessons with teachers from different lines of thought, academic backgrounds and teaching styles. Courses with predominance of a single area of professionals tend to deprive the student of different visions.

But, on the other hand, building a competent faculty of high level is not an easy task for Agribusiness courses managers, because this is an area of knowledge that only recently began to be cleared by the Brazilian educational institutions. There is a shortage of teachers with required training to teach in this sector (BATTLE and others, 2005a).

Hiring agribusiness professionals already retired to teach, can be an interesting outlet for certain institutions. Another proposal is that educational institutions develop a process of continuous professional development of its faculty, and enhancing participation in research projects, seminars and courses (specializations, masters, doctorates and post-doctorates). Only in this way, the institution will be able to form and maintain a faculty capable to teach content and can, simultaneously, monitor the dynamic changes that characterize agribusiness.

Also, in relation to faculty, Boland and Akridge (2004) and Rinaldi, Battle and Mulder (2008) find that it is necessary for teachers to overcome the traditional model of education during their lessons so that they can give an account of forming a professional with critical sense.

Teachers should focus on more interactive methodologies during their lessons which promote teamwork, diversity of views, the expression of ideas, dialectical thinking, for example, debates about controversial issues, case studies, use of generative themes, Socratic questioning.

### **New curricular models**

The traditional curriculum model, based on the Cartesian paradigm of science is inadequate to address the problems and implement the proposals presented so far. Borsatto and others (2005) and Borsatto and others (2007) have raised this issue when discussing the training of professionals in agricultural sciences.

It is necessary to overcome a teaching model where disciplines are found self-absorbed and presented linear and stageist (where it considers that the student has to win a first step to access another entitlement). At this point, it seems that all studies reviewed for producing this article almost converge. For undergraduate courses in Agribusiness, new curriculum models should be used.

Collins and Dunne (1996) share their experience of a three years course, taught at the University of Queensland in Australia, where they adopted a spiral shaped curriculum with great success, in which from the first year of the course, students work with case studies based on technical visits to agribusiness enterprises, where students are driven to explore pre-determined issues with business representatives, analyze the collected information and make both oral and written reports. In the last of the course, students are led to apply the knowledge gained in a project sued by an institution partner company, this project focused on inserting an agrifood product in the Asian market.

Aligned with the project practice, Rinaldi, Battle and Mulder (2008) propose that higher education based on competencies could be an interesting strategy for the courses in

Agribusiness. The authors share the same experience at the University of Wageningen in the Netherlands, which adopted the method of teaching Problem-Based Learning (PBL). The authors concluded that despite the difficulty to be deployed, it has generated very promising results.

## 5. BY WAY OF CONCLUSION

It was not the purpose of this article to propose a curriculum, not even a minimum curriculum for undergraduate courses in Agribusiness. Here we sought to provoke discussion about this professional training, in order to provide a framework that can guide the improvement of existing courses Agribusiness and / or construction of new courses.

Thus, we listed the main aspects that should be considered in this professional training and based on these, a series of recommendations was listed for course managers.

When studying what little there is published on the degrees of Agribusiness in Brazil, it turns out that they still have a long way to go, to build the demanded professional for this sector.

As Batalha and others (2005) found out, in spite of Agribusiness courses being in pursuit of a larger adjustment in relation to the demands of the business sector, little has changed in the teaching approaches used, especially regarding the development of interpersonal skills and communication of students.

The course curricula continue in stages with self-absorbed subjects and linear, lacking interdisciplinarity.

The author is fully aware that the implementation of the recommendations proposed in this article is not an easy thing to be executed. A series of resistances will appear, since, as discussed in the introduction, the development of a curriculum is a social construction. No doubt most of these resistances will come from the teachers themselves.

Thus, here is a list of some prerequisites, without which, the recommendations would have little effect and immediately find resistance within the faculty to be implemented.

- a) Effective participation of faculty in building the political-pedagogical project and the course curriculum.

Projects imposed from top to bottom, constructed without the effective participation of teachers at all stages, tend to find great resistance to be deployed, and even suffer boycotts, and demotivate the teachers, which can ultimately worsen the quality of education and backfire.

- b) Teachers with full dedication to the institution

To implement the recommendations listed in this article, it is necessary that the educational institution has a significant number of teachers dedicated full time to the institution. Developing interagency partnerships, doing research and extension projects, starting relationships with businesses, creating opportunities for new teaching and learning spaces and differentiated teaching methodologies, all these activities demand dedicated people. Educational institutions that only hire teachers to teach classes, can never form a qualified professional in Agribusiness.

c) Support on interdisciplinary projects and extension research

The higher education institutions, through their managers, should create an environment that fosters research and extension, holding in high regard teachers who develop such activities. These activities connect faculty and, consequently, the institution with the reality that graduates will face after graduation. Furthermore, the research creates new knowledge, which makes the institution, no longer just a repeater of knowledge, but it becomes a generator of knowledge. Concomitantly, these projects should be encouraged to be interdisciplinary, involving several teachers.

d) Continued faculty training

Being a relatively new field of study and very dynamic, it is of great importance that the educational institution offers opportunities for its faculty to be constantly updated. Encouraging participation in events and courses have the potential to form a highly qualified faculty who will make a difference in the student's education. Besides, this is a great way to keep a motivated faculty.

Figure 1 presents a scheme that sought to synthesize and systematize the main points discussed in this article.

Finally, inspired by Starbird (2003, 2004) hypotheses, here is a warning to coordinators, teachers and students of courses in Agribusiness. If we can not build courses that really create a competitive differential perceived by the market, our courses tend to disappear or graduate professionals who will be faced with low wages, less mobility and less credibility than their peers trained in Administration or in Agricultural Sciences.

**Figure 1 - Flux of conditions for the formation of a professional in Agribusiness**

**Needed characteristics for a professional graduated in Agribusiness.**

- |  |  |
|--|--|
| 1.Systemic view  | 9.High moral and ethical standard                  |
| 2.Knowledge of the specifics of agribusiness                       | 10.Initiative                                      |
| 3.Respecting and valuing diversity                                 | 11.Working Group                                   |
| 4.Critical Thinking  | 12.Flexibility adaptability                        |
| 5.Strategic Vision   | 13.Persuasive communication and negotiation skills |
| 6.Know how to use softwares in general                             | 14.Leadership                                      |
| 7.Ability to express themselves well orally and in written form    | 15.Criativity                                      |
| 8.Knowledge of how to explain technical information in a clear way | 16.Cope with stress                                |



**Recommendations for course managers**

1. Niche strategy
2. Interdisciplinarity
3. Solid formation in economics
4. Companies support
5. Inter-institutional partnerships
6. New curricular pattern
7. Professional Development of faculty



**Prerequisite for success**

1. Effective participation of faculty in building the political pedagogic project and the curriculum of the course
2. Teachers with full-time dedication to the institution
3. Institutional support on interdisciplinary projects and extention research
4. Continued capacitation program of faculty

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