



## Sowing agricultural knowledge: the pioneerism of the Masters in crop science in Brazil (1961-1981)<sup>1</sup>

Semeando conhecimentos agrários: o pioneirismo do mestrado em Fitotecnia no Brasil (1961-1981)

Sembrando conocimientos agrarios: el pionerismo del maestrazgo en Fitotecnia en Brazil (1961-1981)

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### ABSTRACT

This article analyzes the origins and trajectory of the Post Graduation Program in crop science of the Federal University of Viçosa (UFV), an institution with a great tradition in the field of agricultural sciences and considered as one of the most important in the country in this field of knowledge. In 1961, the then Rural University of the State of Minas Gerais (UREMG), former name of the UFV, began the first Masters Course in vegetable crops of the country, which in 1964 was renamed to crop science. Le Goff (2003) and Pierre Nora (1993), the documentary survey and the interviews were analyzed based on the concepts of memory and heritage, respectively, and analyzed the process of constitution and consolidation of this course of Post Graduation *stricto sensu* pioneer in Brazil, in the area of agrarian sciences, between the years of 1961 and 1981.

**Keywords:** History. Post Graduation. Agricultural Sciences.

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## RESUMO

O artigo analisa as origens e a trajetória do Programa de Pós-Graduação em Fitotecnia da Universidade Federal de Viçosa (UFV), instituição com grande tradição na área das ciências agrárias e considerada como uma das mais importantes do país neste campo de conhecimento. Em 1961, a então Universidade Rural do Estado de Minas Gerais (UREMG), nome anterior da UFV, iniciou o primeiro Curso de Mestrado em Olericultura do país que, em 1964, foi renomeado para Fitotecnia. Tomando por base os conceitos de memória e patrimônio abordados respectivamente, por Le Goff (2003) e Pierre Nora (1993), o levantamento documental e a realização de entrevistas, analisamos o processo de constituição e consolidação deste curso de pós-graduação *stricto sensu* pioneiro no Brasil, na área das ciências agrárias, entre os anos de 1961 e 1981.

**Palavras-chave:** História. Pós-Graduação. Ciências Agrárias.

## RESUMEN

El artículo analiza los orígenes y la trayectoria del Programa de Postgrado em Fitotecnia de la Universidad Federal de Viçosa (UFV), institución con gran tradición en el área de las ciencias agrarias y considerada como una de las más importantes del país en este campo de conocimiento. En 1961, la entonces Universidad Rural del Estado de Minas Gerais (UREMG), nombre anterior de la UFV, inició el primer Curso de Maestrazgo en Olericultura del país que, en 1964, fue renombrado para Fitotecnia. Basándose en los conceptos de memoria y patrimonio abordados, respectivamente, por Le Goff (2003 y Pierre Nora (1993), el levantamiento documental y las realización de las entrevistas analizamos el proceso de constitución y la consolidación de este curso de postgrado *stricto sensu* pionero en Brazil, en el área de las ciencias agrarias, entre los años de 1961 y 1981.

**Palabras clave:** Historia. Postgrado. Ciencias Agrarias.

## Introduction

This article tackles the origins and trajectory of the Graduate Program in Plant Science of the Universidade Federal de Viçosa (UFV), an institution federalized in 1969, with great tradition in the field of agricultural sciences, since its foundation in 1926, when it was named Escola Superior de Agricultura e Veterinária (ESAV), and throughout the period of the Universidade Rural do Estado de Minas Gerais (UREMG), between 1948 and 1969.

ESAV was conceived by the Government of the State of Minas Gerais to provide practical training, which turned it into an exception in an environment where academic education prevailed in most Brazilian higher education institutions of that time. The school was created following the standards of the American Land Grant Colleges - grounded in the education, research and extension trilogy, addressing the issues related to agriculture and farmers. This model achieved great economic success in the Southern and Midwestern United States, mainly from the 1880s, thus contributing to the diffusion of a scientifically based agriculture that employed improved agricultural production techniques.

The influence of this model on ESAV was intensified in the 1950s, during the UREMG phase, when agricultural production modernization started in Brazil. It greatly impacted the following decades, when the so-called Green Revolution took place<sup>2</sup>.

According to Ribeiro (2005, p. 53), this innovation process, which partly served the interests of the national agrarian oligarchy and the US government, maintained our country as an agro-exporter, subordinated to the international market under the control of that country and a political ally during the Cold War, which was already established and was intensified in Latin America after the Cuban revolution (1959). The diffusion of the *stricto sensu* graduate program was one of the strategic sectors for the propagation of values linked to the capitalist system.

In that period, according to Santos (2003), the United States launched several assistance programs for "friendly countries", including Brazil. A series of agreements were developed between North American and Brazilian schools and universities through the exchange of students, researchers and faculty<sup>3</sup>. American foundations played an important role in the promotion of these actions in scientific, technical and cultural areas.

It must be pointed out that, since its inception, the UFV has maintained a relationship with the United States. The policy adopted by the Alliance for Progress Program<sup>4</sup> strengthened these ties and provided the financial resources for the expansion of agricultural research and the introduction of teaching techniques that directly affected the model adopted by this institution of higher education.

Therefore, undergraduate programs were no longer sufficient to match the advancement of science and technology or meet the demands of the labor market. Factors such as the rapid growth of the urban population and the increased number of educated people and higher education institutions compelled some Brazilian universities to create graduate programs.

In this scenario, in the early 1950s, the then called UREMG established a series of international agreements with an American institution, the Purdue University. Through the

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<sup>2</sup> The so-called Green Revolution referred to a broad program for the dissemination of seeds and agricultural techniques, funded by the Rockefeller Foundation, which started to operate in the 1950s in the United States and Europe and spread to other countries in the following decades.

<sup>3</sup> According to SANTOS (2003), the Instituto Tecnológico de Aeronáutica (ITA), Universidade Federal de Viçosa (UFV) and Universidade Federal do Rio de Janeiro (UFRJ) were the institutions most influenced by the North American model.

<sup>4</sup> This agreement between the United States and various Latin American countries, signed in 1961, consisted of a program to strengthen their economic, political and social ties through cooperation agreements, in the Cold War scenario.

United States Agency for International Development - USAID, the Purdue University selected a Brazilian institution for the establishment of an agreement that targeted the training and qualification of faculty for agricultural education, research development and rural extension activities. After a long visit to the UREMG, Dr. Earl Butz, the Director of the Purdue School of Agriculture at that time, announced that the institution had been chosen to start the program (Borges 2006, p. 100).

Thus, in 1961, through the establishment of agreements with the United States, the UREMG entered an important development phase. At that time, the institution also started to receive significant financial assistance from the Ford and Rockefeller Foundations, which strengthened its ties with that country.

The Ford Foundation started its activities in Brazil in the early 1960s, and its office was located in the city of Rio de Janeiro, the Federal District at that time.

As early as 1960, the Ford Foundation started to make contacts, and soon afterwards, although it did not have permanent headquarters or an administrative body, it started to grant the early donations to public universities and institutions of the Brazilian government. Reynold Carlson was in charge of these first operations. He started to work in different hotel rooms and later, in 1962, in the living room of the apartment where he lived in Rio. He granted the first donations, including around three million dollars (updated amounts) to a public administration training program, under the management of a government research institute, the Fundação Getúlio Vargas (FGV), which is currently included in the Foundation's list of beneficiaries. (BROOKE and WITOSHYNSKY, 2002, p. 13)

The UREMG was one of the institutions that received the highest amounts of financial incentives from the Ford Foundation, especially in the establishment and consolidation of graduate programs, according to several reports, published in institutional local newspapers. The funds provided by the Foundation were seemingly important for the creation of master's and doctoral programs, which allowed the University to maintain its international recognition as a center of excellence.

It seems that the Institute of Rural Economics benefited most from the partnership with the Ford Foundation. Besides being the first department of the institution to have its own headquarters inside the campus, it received several financial resources for the creation of the *stricto sensu* graduate program in Rural Economics. It was created in March 1961, together with the graduate Program in Plant Science (PPG-FIT), and both pioneered the offer of graduate programs in agricultural science in Brazil.

It is plausible to suppose that this funding continued to be provided throughout the 1960s, as observed by Brooke and Witoshynsky:

Another example is the total of \$ 6.5 million granted to the Universidade de Viçosa in two financing operations alone, in 1965 and 1968, which is a massive injection of resources in a short period of time for the development of a new institution of higher education focused on agriculture research and teaching (BROOKE and WITOSHYNSKY, 2002, p. 21)

According to these authors, the Universidade Federal de Viçosa was ranked in the 5th position among the "50 largest recipients, considering the total donations received (in 2001, in

dollars)" from the Ford Foundation. The following institutions are in the highest four positions: Universidade de São Paulo, Universidade Federal do Rio de Janeiro, Fundação Getúlio Vargas and Sociedade Brasileira de Instrução (BROOKE and WITOSHYNSKY, 2002, p.50)

The Rockefeller Foundation is an American institution that worked closely with the UFV, besides the Ford Foundation. Created in 1913, this institution was formally constituted as a philanthropic civil society, whose goal was the promotion of the well-being of humanity. Similarly to its counterpart, it provided financial assistance for the acquisition of equipment, improvements in physical structure and hiring of new faculty for Viçosa University.

By providing financial and cultural conditions, the agreements made possible the introduction of new teaching and research techniques for agriculture modernization through the new knowledge brought to rural universities, among which Viçosa played a significant role.

In this context, in the 1950s, the UREMG Department of Plant Science, following a tradition initiated by ESAV in 1937<sup>5</sup> and anticipating the increasing need for specialized training for their faculty, promoted and invested in the training of professors who aspired to study in the United States to improve their agrarian knowledge for the practice and use of new methods and techniques more suitable for our tropical climate.

This training project, signed between the Purdue University and UREMG was called Project 55 because of its registration number at the US Agency for International Development (USAID) and the Technical Office of Agriculture (ETA), which was in charge of executing the various projects in Brazil, each with a different registration number.

The implementation of the ETA Project 55 and the exchange of professors between the Purdue and Viçosa universities have greatly contributed to the improvement of experimentation and research and the development of the first graduate programs in agricultural science in Brazil. In March 1961, the Department of Plant Science implemented the first master's program in Olericulture<sup>6</sup>, which was definitely renamed Plant Science, in 1964.

The Brazilian economic framework at the time of the implementation of the Plant Science master's program already indicated a trend of significant changes in the traditional modes of agricultural production. The agricultural activity started to be intensified in many developed and developing countries, which was often referred to as the *Green Revolution*. Therefore, from the 1960s onwards, with the modernization of agriculture, changes in agronomic practices were evident, as well as the incorporation of new technologies, which had hitherto been imported, so as to meet the increased demand for agricultural products from the external market and raw materials from the domestic market. This scenario would be consolidated in 1964, following the military coup in Brazil.

The UREMG Graduate Program in Plant Science was generated in this context. We will analyze aspects related to the constitution of its intangible heritage that begins to be produced based on documentary sources and the memory of some individuals who had important participation in the process of creation and consolidation of this *stricto sensu* program, a pioneer in the field of agrarian sciences in Brazil.

According to Candau (2014), the forms of identity construction can be observed through memory and are under permanent construction through the raw material provided by its remnants, since it is through them that the past becomes a discourse capable of building the identity of the group before others. And in this relationship, remembering and forgetting are at stake, which, together with other documentary sources, help us to organize/select the set of events that, in the present case, constitute the construction of aspects related to the

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<sup>5</sup> In that year, "Minas Gerais government started to guarantee the release, in a continuous flow, of two ESAV professors for graduate level training in the United States." (AZEVEDO, 2005, p. 106).

<sup>6</sup> It is important to highlight that this master's program sometimes appears under the name of "Olericultura" (Olericulture), and sometimes, "Hortaliças" (Vegetables). However, the first dissertations defended had the title of *Magister Scientiae* in Olericulture, today called Plant Science.



institutionalization of the UFV Graduate Program in Plant Science and the formation of its material and immaterial patrimony.

The description of the path, the life trajectory of the Graduate Program in Plant Science, based on the existing and available documents, made it possible to (re) tell this history. For such, we use the concept of memory as a category of analysis of science, taking into consideration the polysemic trait of the term, due to its diverse meaning, according to the type of information / document, its scope and uses.

It is worth mentioning that, in the bibliographic research carried out for this conceptual survey, we found many definitions for what is meant by memory. For the purposes of this study, the meaning of memory, as well as the distinction between documentary and oral memory adopted, are given by Bellotto (2005), to whom memory is "a set of information and / or documents, organic or not". The researcher distinguishes the sense of oral memory from documentary memory by stating that "memory is referencing, not collecting or storing. The documents exist in their sites, without any attempt being made to bring them together materially. Information has just to be captured, and the object, identified, located and made available to the researcher ". (BELLOTTO, 2005, p. 274).

Thus, in addition to documentary memory, it is important to emphasize the relevance of oral history, obtained through the practice of recalling memories through testimonies, which adds a living dimension to the work of researchers, since it allows us to construct in the present, based on experiences of the past and the memories that follow. Through the impressions, experiences and memories of those individuals who were willing to share their memory with the community, we enjoyed a much richer, dynamic and lively experience related to situations that otherwise would not be possible for us to know.

Therefore, the preservation of documentary memory, as a fundamental element for the recovery and maintenance of institutional history, is also a guarantee of access to information. It makes data accessible to citizens and becomes an important legacy for future generations, who will be given the opportunity to know more about their past.

In accordance with the concept already exposed, Le Goff (2003) adds that "the memory, in which history grows, which in turn feeds it, seeks to save the past and deliver it to the present and the future. We must work in a way to make collective memory be used for the liberation rather than the servitude of men" (LE GOFF, 2003, p. 471) The author also tells us that there is no undocumented history, but it is up to us, as historians, to take the word "document" in the broadest sense, considering written and illustrated documents, besides those transmitted by sound, image or any other way to express the events that have already occurred.

For Nora (1993), historians increasingly assume a central role in this new society that faces ever faster changes in its form. Historians would be those capable of making history not just history but a critical narrative. In such context, places of memory emerge, which, for the author, are means of access to memory, which is already history, since it is reconstituted by means of vestiges and remains. "The places of memory are, first of all, remnants, the extreme form where a commemorative consciousness subsists in a history that calls for it, because it neglects it." (NORA 1993, p. 12).

Thus, our search for memories, data and documentary records related to the Plant Science Graduate Program also agrees with Gumbrecht's (2015) narrative, which highlights that the fascination with the past does not seem to diminish. On the contrary, the author claims that this enchantment seems to be something anthropological, something that apparently constitutes a matrix feature of human societies. Therefore, we argue that the first *stricto sensu* graduate program of the UFV and Brazil in the area of agrarian sciences has a history and needs to be nurtured, fed with information, reports, records, photos and documents that express the behavior of an entire generation, dedicated to the search of

advances and improvements in the field of agronomy, in the production of plants and creation of new technologies to increase agricultural production.

It must be pointed out that reflection about the creation of this program, the interests of its creators and the reason for its institution at that particular moment, according to Gumbrecht (2015), can provide today a set of possibilities about the past, since the past is always written from the present. That is why historians' views of the past are undoubtedly of great significance for understanding the present, since the ways we see and relate to this past are the fruits of the historical moment in which we live, which is constantly changing.

That said, we recognize that every institution should be responsible for taking care of its memory and the historical patrimony it carries, through the preservation of both documents and objects, monuments and reports produced by its actors, providing access to information about its history to those interested. Documents, besides memories, are records of moments that should be known and become objects that preserve memory or serve for research aimed at (re) constructing such memory.

In the case of material assets, we verified that, according to the information available in the GEOCAPES<sup>7</sup> application, in 1998, only in the area of Agrarian Sciences I<sup>8</sup>, 757 individuals had received a master's degree and 277, a doctoral degree. Seventeen years later, that is, in 2015, the figures soared to a total of 2,678 individuals holding a master degree and 1,324, a doctoral degree. It means an approximate growth of 254% and 378%, respectively. In the same year, 120 students received their professional master's degree in Agricultural Sciences I.

Today, in 2018, the Graduate Program in Plant Science is among the four that were graded 6 by CAPES. This is the highest score obtained by the Plant Science programs of the area of Agricultural Sciences I, since none of the others received grade 7. The following programs were graded 6 by the last four-year assessment conducted by CAPES (2013-2016): Plant Science (UFERSA), Plant Science (USP), Plant Science - Plant Production (UFV) and Agronomy - Plant Production (Universidade Estadual Paulista Júlio de Mesquita Filho - UNESP / JAB).

Therefore, it is worth mentioning that, in the Brazilian scenario, we verified the presence of approximately thirty *stricto sensu* graduate programs, with various denominations, including: Agronomy (Plant Science), Agronomy (Plant Production), Plant Science, Plant Science (Plant Production), Plant Production, Plant Production and Associated Bioprocesses and Vegetable Production in the Semi-Arid region. The concentration area of these programs is Plant Science or Plant Production, and their study basis is equivalent, that is, the development of cultivation techniques and plant production.

The importance of Plant Science can be demonstrated by the fact that research in this field of knowledge has disseminated a set of techniques to increase agricultural productivity, through the development and improvement of crop production systems, besides studies related to practices for the cultivation of crops, orchards, vegetable gardens, pastures and forest species. The activities of this field include sowing or planting seasons, harvest, plant distribution patterns (plant arrangement and population), seedling production, grafting, plant pruning, weed control, rotation systems, succession, plants and no-tillage, integration between crops, pastures and forest species. In addition, the rational use of techniques has already been prioritized, so that high productivity can be achieved without damage to the environment.

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<sup>7</sup> GEOCAPES - Sistema de Informações Georreferenciadas | CAPES - Available at: <<http://geocapes.capes.gov.br>>. Access on: January 11, 2018.

<sup>8</sup> According to CAPES, there are 49 evaluation areas separated into two levels, according to their affinity criterion: 1st level - Colleges (College of Life Sciences, College of Exact, Technological and Multidisciplinary Sciences, College of Humanities) and 2nd Level - Comprehensive Areas. The comprehensive area of Agrarian Sciences I aims to promote knowledge generation and scientific and technological development, as well as the transfer of the knowledge generated to enhance the competitiveness and sustainability of national agribusiness. Available at: <<http://www.capes.gov.br/avaliacao/sobre-as-areas-de-avaliacao>>. Accessed on: January 11, 2018.

Thus, considering the role of such programs in the training of citizens capable of actively participating in economic, social and political processes, the memory of this program must be preserved, so as to make its past, the challenges faced and the achievements of this trajectory known by the public.

### **The origins of the UFV Graduate Program in Plant Science**

As already mentioned, the Graduate Program in Plant Science was created in the Department of Plant Science of the UREMG, now called UFV, which, in turn, originated from ESAV. From the beginning of its construction, in 1921, the institution was managed by Professor Rolfs, who elaborated and assisted in the establishment of the school, and remained as its first principal until 1929. A graduate from the Land-Grant College of Iowa, USA, Professor Rolfs also requested, in 1929, the hiring of three other American professors - Albert Stanley Muller, Albert Oliver Rhoad and Edson Jorge Hambleton, as well as the Brazilian professor Diogo Alves de Mello, who had graduated in the USA. The presence of US faculty in the ESAV eventually consolidated an eminently practical teaching approach, in other words, "learning by doing"<sup>9</sup>, which became the motto of the institution.

In addition to adopting the land-grant college model, ESAV counted on a large number of international professors. In 1937, it started to send Brazilian professors to be trained in the United States, who disseminated ideas and practices of the American society, that is, Americanism<sup>10</sup>, in the institution.

Aiming to expand the School, in 1948, the ESAV was transformed into UREMG, formed by the Escolas Superiores de Agricultura, de Ciências Domésticas e de Veterinária (Superior Schools of Agriculture, Home Sciences and Veterinary) and the Escola de Especialização (Specialization School)(graduate program), of the Serviço de Experimentação e Pesquisa (Experimentation and Research Service) and Serviço de Extensão (Extension Service).

The year of 1958 became an important milestone for the rural state university, since an agreement was signed between the UREMG and Purdue University. The project "Escritório Técnico de Agricultura", or "Technical Office of Agriculture" (ETA) - Project 55<sup>11</sup>, was established as a result of an agreement between the Brazilian and American governments to provide technical assistance to the Rural Universities of Brazil. UREMG was chosen as its headquarters, since plans had been made to turn it into a strong institution, following the Land-Grant College standard.

The agreement between Purdue University and UREMG allowed the creation and maintenance of graduate programs in this Brazilian institution, from 1961 on<sup>12</sup>. The several objectives of the agreement included the strengthening of elementary and higher education in Brazil, in the field of agriculture, animal sciences and domestic science; the promotion of the most efficient and profitable development of agricultural research programs in national schools and other research institutions; assistance in the creation of a more effective system for the dissemination of agricultural information to rural populations and other sectors; promotion of the development of the Land-Grant College philosophy in Brazil so as to improve the coordinate action of the three elements (teaching, research and extension); increased public recognition of agriculture and domestic sciences; and improved economy of

<sup>9</sup> Process by which learning is achieved through experiential activities, in other words, "learning by doing."

<sup>10</sup> In the education process, "learning by doing" became a typical trait of Americanism. This theory was applied at ESAV from the start, and consolidated over the years.

<sup>11</sup> ETA maintained several projects in Brazil and each work had its own denomination and number. In Viçosa, it was named ETA - Project 55.

<sup>12</sup> The Master's Program in Olericulture, now called Plant Science, and Master's Program in Rural Economics, nowadays named Applied Economics, started in 1961.



the country by means of efficient agricultural practices besides the well-being of rural area dwellers.

It is important to mention that the Council of the two UREMG Graduate Programs<sup>13</sup> met for the first time on December 16, 1961, in the Office of Research and Experimentation Service, to appoint the components of the examining board of the thesis defense of the Rural Economics and Horticulture programs' students<sup>14</sup>, taking into account the advanced content of the theses. The boards were composed and appointed for the students who would soon present their defenses, with slight variations among their members. It is also recorded in the minutes of this first Council meeting<sup>15</sup> that the boards would define the time and place for the defenses and examination of the theses. The examiners should concentrate on the main subject, but could also extend to related issues.

It is worth mentioning that the first dissertations were defended in the same year of the creation of the Master's Program in Olericulture. The first one was entitled "Effects of Irrigation and Calcium Application on the Apical Rot of Tomatoes (*Lycopersicon esculentum* Mill)", defended on December 19, 1961, by José de Almeida Soares. Professor Flávio Augusto D'Araújo Couto was the advisor of this and the other four dissertations defended in 1961. This short term for the defense of the first dissertations (less than two years) was, at the time, exceptional, as evidenced by this advisor professor:

As the experimental technique at that time was already very advanced and our research work was entirely conducted as fieldwork, the research projects were developed together with the aid of graduate students, who immediately carried out their dissertations, so ours was the first.<sup>16</sup>

At the time of its creation, the Graduate Program in Olericulture, currently called Plant Science, belonged to the Department of Horticulture. Together with the Department of Agronomy, it gave rise to the Department of Plant Science, which holds the same name today (BORGES, 2006, 226). The Master's program in Rural Economics<sup>17</sup>, which belongs to the Department of Rural Economics, started its activities in the same period, March 1961, but the first thesis of this program was defended only on June 19, 1962<sup>18</sup>, by the student Filadelfo Brandão.

Due to the investments provided by American foundations to UREMG, in 1966, with the support of the Rockefeller Foundation, the Vegetable Germplasm Bank (BGH - UFV) was created with the purpose of rescuing native or introduced species, preserving, documenting and maintaining the exchange of germplasm among the different regions of Brazil. To this end, resources stored through collection in various parts of the country or received as donations from more than 100 countries are characterized, evaluated and made available to the national scientific community.

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<sup>13</sup> Source: UNIVERSIDADE FEDERAL DE VIÇOSA. Minutes number 1. Meeting of the Council of Graduate Programs of the Universidade Rural do Estado de Minas Gerais. Viçosa. Universidade Rural do Estado de Minas Gerais, December 16, 1961.

<sup>14</sup> Olericulture Program, today called Plant Science, as already mentioned, which sometimes received other denominations.

<sup>15</sup> This inaugural meeting was attended by all the councilors, except Professor José de Alencar. The following members were present: José Rodolfo Torres (Chairman of the Board), J. Woods Thomas, Edson Potsch Magalhães, Eryl Dias Brandão, Fábio Ribeiro Gomes, Flávio Augusto D'Araújo Couto and Joaquim Mattoso. The American Co-Director of Project 55, Professor Ray M. Lien, was also present, as a special guest.

<sup>16</sup> Interview with TV Viçosa, given by Professor Flávio Augusto D'Araújo Couto, in May 2016, during the UFV TV program "Memória Viva".

<sup>17</sup> It should be clarified that, since 2002, this program has been called Applied Economics. It now belongs to the Economics evaluation area, according to CAPES classification.

<sup>18</sup> Source: UFV - Graduate Theses from 1961 to 1980. Viçosa: Imprensa Universitária (University Press), Universidade Federal de Viçosa, 1982, p. 7.

At the end of the 60's, the first germplasm collections were established at the UFV. The trips were scheduled so as to include cities or regions of ancient settlement and those where local varieties were developed by farmers. The researchers Flávio Augusto D'Araujo Couto and Joênes Pelúzio Campos (UFV professors) and Professor Homer Erickson, from the Purdue University (USA), participated in the first ten trips (SILVA, 2001, p. 109)

Currently, the BGH, located in the Teaching, Research and Extension Unit (UEPE) called Horta Velha, belongs to the UFV Department of Plant Science. Its collection includes more than 8000 subsamples of vegetables collected by students, professors and researchers, in various parts of Brazil, or donated by several countries.

In light of the above and according to Gustavo Bianchi, "the discussion about the strength of the Purdue-Viçosa Project at UREMG/UFV goes beyond the availability of resources and provision of infrastructure. The strengthening of the notion of equality between teaching, research and extension was greatly emphasized in the agreement "(SILVA & BOTELHO, 2015, p.54). It is evident that by endorsing and investing in the University, American scientists expected something in return, in addition to the publicity given to the donations made to UREMG, which they clearly approved and encouraged. There was also the submission of projects to meet their interests and their intention to have influence in the decisions of the Minas Gerais institution.

It is not difficult to affirm that the UREMG, later called UFV, was interested in strengthening this project, especially with regard to the inflow of resources for infrastructure and research and, mainly, the opportunity to receive complementary training in the United States. Besides, it is not difficult to note that the central role assumed by Purdue University in the agreement consisted, among other things, in imposing values and providing ways for the UREMG / UFV to submit to them. On the other hand, although the scientists chose the path of development advocated by the US since the origin of the local University, the American influence was seen with mistrust by some Brazilians (SILVA & BOTELHO, 2015, p. 55)

Opinions differ about the real interests of the Ford and Rockefeller Foundations in investing in the Brazilian agrarian field. It is also known that such agencies brought to us the culture and scientific practice of the United States. In fact, some marks were left. It cannot be denied that since the establishment of these agreements, the UREMG has experienced a strong and vigorous expansion that turned it into an institution nationally and internationally recognized.

In March 1961, the Plant Science Graduate Program became a pioneer in the country. In 1965, it was created a Master's Program with the same name at the Universidade Federal do Rio Grande do Sul<sup>19</sup> (UFRGS). Other agrarian science programs were established in Brazil, in the 1960s, as listed in the table below:

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<sup>19</sup> Initially, the program was named Graduate Program in Agronomy, available at: <[http://www.capes.gov.br/images/documentos/Documentos de area 2017/42\\_cagr\\_docarea 2016.pdf](http://www.capes.gov.br/images/documentos/Documentos%20de%20area%202017/42_cagr_docarea_2016.pdf)> e <<http://www.ufrgs.br/agronomia/joomla/index.php/ppgfito-o-programa>>. Acesso em: 16 jan. 2018.

**Table 1:** Master's Programs in Agricultural Sciences I created in Brazil in the 1960s<sup>20</sup>.

Started in	Name of Program	Institution
1961	Plant Science	UREMG/UFV
1961	Rural Economics	UREMG/UFV
1962	Animal Science	UREMG/UFV
1964	Statistics and Agronomic Experiment	ESALQ <sup>21</sup>
1964	Plant Pathology	ESALQ
1964	Genetics and Plant Breeding	ESALQ
1964	Soils and Plant Nutrition	ESALQ
1965	Soil Science	UFRGS
1965	Plant Science	UFRGS
1965	Animal Science	UFRGS
1968	Entomology	ESALQ
1968	Plant Science	ESALQ
1968	Rural Extension	UFV

**Source:** Plataforma Sucupira. Assessed and recognized programs. Available at: <<https://sucupira.capes.gov.br/sucupira/public/index.jsf>>. Access on: January 10, 2018.

We recognize that the first *stricto sensu* graduate programs in this area played an important role in the national scenario, since, to some extent, they served as the model to be followed by the other emerging programs in Plant Science. According to Federizzi (2007), the older programs were significantly influential, and the programs that followed are very similar to them.

Only in 1965, the graduate programs in Brazil were formally recognized, through Opinion 977 of the Federal Council of Education, according to which the graduate model to be implemented was adequate to the new concept of university, in the American molds, for the objectives and operating criteria. Although the adopted model was considered ideal to be implemented in the Brazilian graduate system, several authors criticize it, due to the differences between the Brazilian and American university models.

Nevertheless, such model differences do not seem to have been relevant to its implementation in UREMG, due to its historical affiliation to the land grant college model, the departmental structure, the semi-annual credit regime and the almost continuous exchange of faculty between the UFV and counterpart institutions in the USA, from the time it was an isolated college and over the period investigated.

It seems that the Plant Science Graduate Program has played a very important role in the internationalization and international cooperation<sup>22</sup> process. It received international students who, from 1961 to 1981, accounted for 5.5% of the total number of graduate students, including the Bolivian Ramiro Arzabe Antezana<sup>23</sup>, whose dissertation defense was approved on April 16, 1962. It was the ninth defense occurred in the program. Until 1981, no foreign student was enrolled in the doctoral program, whose first theses were defended in 1977, as shown in Table 1.

<sup>20</sup> This survey refers only to the programs included in the Agricultural Sciences I evaluation area of CAPES. However, it is not possible to say that no *stricto sensu* graduate programs have been carried out in other evaluation areas, since 1961 or even before.

<sup>21</sup> Escola Superior de Agricultura "Luiz de Queiroz".

<sup>22</sup> In the first decade of operation, the Master's Program enrolled students from Brazil and other 7 (seven) countries: Bolivia, China, Japan, Panama, Paraguay, Venezuela and Peru.

<sup>23</sup> Under the advice of Professor Flávio Couto, he defended his dissertation, "Incompatibility in *Brassica oleracea* var. *capitata*", on April 16, 1962. Source: 9th Quarterly Report of Co-Directors, from January 1 to March 31, 1961.

According to the aforementioned minutes<sup>24</sup>, the Program received students from governmental and private institutions from several Brazilian states. In addition to a salary, they received financial support for housing and lodging through the collaboration project between the Purdue University and UREMG.

In fact, graduate studies have concentrated and still concentrate most of the national research capacity and are the basis for the training of students and faculty. The close relationship between advisors and students favors successful research works and thus provides (or not) the ideal environment for new discoveries in the field of agricultural production.

Therefore, in its 55 years of activity, many professors were included in the list of mentors of the Graduate Program in Plant Science. However, in the initial years, more precisely in the first two decades, between 1961 and 1981, Professors Flávio Augusto D'Araújo Couto and Clibas Vieira provided outstanding participation.

Professor Flávio Augusto D'Araújo Couto started his teaching career in 1951 as an instructor in the Department of Horticulture of the then called Universidade Rural do estado de Minas Gerais, UREMG. Two years later, he was approved in a public contest for Olericulture Assistant Professor. In 1955, he obtained the title of *Magister of Science* from the University of California-Davis. He was the head of the Department of Horticulture and director of the Institute of Plant Science. In 1958, he was granted a doctoral degree in Olericulture and Gardening. Upon his approval in academic contests, he assumed the position of Full Professor at UREMG.

It must be highlighted that Professor Flávio Couto participation was decisive in the shaping of this program, which was the first in the area of Plant Science in Brazil. He was also the advisor of the first master thesis defended on December 19, 1961. Professor Couto advised the greatest number of students from 1961 to 1971, a total of 36 dissertations, which demonstrates his significant contribution for the training and consolidation of the Program. It is worth mentioning that, even after retiring, in 1971, he still continued advising a student that defended his master's thesis in May 1972<sup>25</sup>.

Professor Clibas Vieira, known for his experience in the area of bean breeding, is another outstanding scholar who worked in the planning and consolidation of the Graduate Program in Plant Science. He graduated as an agronomist from UREMG in 1952 and received the title of *Magister Scientiae* in Agronomy in 1958 from the University of California, Davis, USA. In 1961, he obtained a doctoral degree in Agronomy, as he defended the thesis "Effects of green intercalary fertilization on maize yield". In 1962, he became full Professor with the thesis "Contribution to the improvement of common bean (*Phaseolus vulgaris* L.), in the State of Minas Gerais"<sup>26</sup>.

He worked as an advisor for the program from 1962 onwards, cooriented students and took part in several thesis defense examining boards. From 1961 to 1981, 36 masters' orientations were carried out. In addition, Professor Clibas published 248 articles and 255 research abstracts in scientific journals. He received 27 awards (VIEIRA, 2009, page VII), assumed several administrative positions at UREMG / UFV and actively participated in presentations of work and / or seminars, presiding over meetings and giving courses, always divulging the name of the Graduate Program in Plant Science among his peers<sup>27</sup>.

From 1961 to 1981, Professors Flávio Augusto D'Araújo Couto and Clibas Vieira advised more students than the other advisors of that time. This initial disproportion seems quite

<sup>24</sup> Minutes of the 11th and 12th Joint Meetings of the Consultative Council - ETA Project 55, January 18, 1962.

<sup>25</sup> Student Ulysses Soares, who defended his master's thesis "Study on the production and industrial yield of eight pepper (*Capsicum annuum* L.) cultivars" on 05/27/1972.

<sup>26</sup> **Personagens e Pioneiros da UFV**. Available at: <<http://www.personagens.ufv.br/>>. Access on: 15 jan. 2018.

<sup>27</sup> He held several administrative positions at the UFV, as Director of the Graduate School (1965-1969), Chief of the Department of Plant Engineering (1972), President of the Editorial Committee of Ceres Magazine (1972-1973 and 1975-2004) and Academic Dean (1984-1988). He died on October 18, 2004, at the age of 77.

reasonable, since the number of mentors at the beginning of the program was very small and new names were slowly being added to the list of mentors.

Several individuals took part in this story, which has lasted for more than half a century. Here, we highlight only two emblematic members of this trajectory, faced with the impossibility of naming all the subjects and giving them the due credits. However, the efforts of faculty, students, secretaries and auxiliaries in the construction, maintenance and improvement of this Graduate Program in Plant Technology are remarkable, since this process is mainly the result of a continuous construction, always depending on the partnership and dedication of its actors.

Therefore, as a result of the patrimony produced by this Program over half a century, a great number of defenses were conducted (Table 1), over 1,600, composed of 1,111 dissertations and 513 theses defended by 2017. The current faculty is formed by 36 professors, who manage the training of future professionals focused on solving problems related to agriculture and environmental preservation.

**Table 2:** Total master's and doctorate defenses in the UFV Plant Science Graduate Program in (1961 - 2017).

Year	Master's Defense	Doctorate Defense	Total
1961	5	-	5
1962	4	-	4
1963	2	-	2
1964	5	-	5
1965	4	-	4
1966	5	-	5
1967	6	-	6
1968	6	-	6
1969	12	-	12
1970	20	-	20
1971	13	-	13
1972	23	-	23
1973	15	-	15
1974	22	-	22
1975	25	-	25
1976	28	-	28
1977	27	2	29
1978	24	2	26
1979	26	3	29
1980	23	3	26
1981	13	2	15
1982	18	3	21
1983	15	4	19
1984	17	1	18
1985	18	4	22
1986	13	2	15
1987	15	4	19
1988	23	6	29
1989	9	5	14
1990	15	7	22
1991	21	6	27

Ano	Master's Defense	Doctorate Defense	Total
1992	18	10	28
1993	29	7	36
1994	21	8	29
1995	17	11	28
1996	24	10	34
1997	31	16	47
1998	21	16	37
1999	22	12	34
2000	22	7	29
2001	24	18	42
2002	31	16	47
2003	26	19	45
2004	27	15	42
2005	24	17	41
2006	22	18	40
2007	31	15	46
2008	21	20	41
2009	23	22	45
2010	21	17	38
2011	24	25	49
2012	24	20	44
2013	36	44	80
2014	17	31	48
2015	29	25	54
2016	26	19	45
2017	28	21	49
	<b>1.111</b>	<b>513</b>	<b>1624</b>

**Sources:** Research Manager Source: System and Graduate - SGPPG and Graduate Program in Plant Science.



## Conclusions

Considering the above, the relevance of the UFV Graduate Program in Plant Science and its trajectory over the years, it is important to recall such history. According to CAPES assessment for the 2013-2016 quadrennium, the program was among the four programs rated grade 6, considered as "excellent", and according to the Sucupira Platform, approximately thirty institutions in Brazil offer graduate programs with similar denominations and equivalent studies, sorted in the CAPES area of Agricultural Sciences I.

It must be highlighted the presence of programs related to the agrarian field at the Universidade Federal de Viçosa, especially *stricto sensu* programs, since the agricultural calling of the institution has been steadily strengthened over the years. Nevertheless, other areas have also been addressed, which makes the UFV a diverse learning environment, through the adoption of a set of academic activities consistent with the concept of modern university, since the interaction between different areas improves the results of the research works developed.

Therefore, we can conclude that memory is an essential factor in history studies, not only for this Program but also for any and all human legacy. In addition, this memory complemented by oral history enables the development of research and knowledge that contribute to society and bring community and its cultural and scientific heritage closer.

With this in mind, the constitution and preservation of a historical and documentary collection on aspects of the PPG-FIT history are sources for the development of other projects, services and varied consultations. This will provide support for the institution in its decision making and knowledge of its history. The institutional memory, based on its own trajectory data, emphasizes the importance of each subject within this context, since the work performed nowadays gains new meaning from the moment when people know the history in which they are inserted. Thus, individuals can become agents for the strengthening of their culture, collaborating for its perpetuation over time, which helps them in the construction of meanings and critical awareness.

It is worth mentioning that the introduction of *stricto sensu* graduate programs in the UFV in 1961 was made possible by the preconditions obtained, such as the considerable number of doctoral professors and the demand for this level of education. This initiative anticipated the legal provisions of the Federal Council of Education in 1965<sup>28</sup>, and the UFV became a pioneer in agrarian sciences and graduate studies in Brazil, as stated by Massarani (2002).

We highlight the fact that the preservation of institutional and memory patrimony, either documentary, archival, scientific, institutional or governmental, can effectively provide society with knowledge about another time, searching elements from the past that help us understand and (re) construct the path traveled, conveying the notion of continuity of an entire generation, as well as the apprehension of the present, seeking to build the future.

The present study led us to conclude that the Plant Science graduate program was mainly created due to a favorable international environment, besides the ideal, persistence and dedication of the pioneer faculty team of the Department of Plant Engineering of the former UREMGE. We recognize that, despite being consolidated, the program is in a constant process

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<sup>28</sup> Definition of the Graduate Programs – Opinion number 977/65, C.E.Su, approved on 12/3/1965. Available at: <[https://www.capes.gov.br/images/stories/download/legislacao/Parecer\\_CESU\\_977\\_1965.pdf](https://www.capes.gov.br/images/stories/download/legislacao/Parecer_CESU_977_1965.pdf)>. Access on: May 28, 2018.

of construction and reconstruction, seeking to follow the advances of science, the use of new teaching technologies and the development of research works targeting to meet the needs of the population so that more professionals can be qualified to develop competent and innovative activities that will boost the national scientific and technological advance.

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