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ACCREDITATION AS A WAY TO OFFER QUALITY EDUCATION: THE CASE BACHELOR'S DEGREE OF AGRICULTURAL ENGINEER IN PRODUCTION

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Abstract: The Bachelor's Degree of Agricultural Engineer in Production is one of the degrees offered by the Autonomous University of the State of Mexico in the northwestern part of the State of Mexico, in one of its academic spaces which is the University Center UAEM Zumpango and is an educational program that had its origins in the Faculty of Agricultural Sciences by the year 1986 and to date has made two curricular modifications, always thinking of offering a quality education and offering the labor market, professionals in the area of Agricultural Sciences with knowledge, skills and abilities according to the profession and provide solutions to the problems facing the Mexican countryside, for which this degree was able to obtain accreditation by CIEES for a period 2020 to 2024, which ensures to continue offering quality education according to social needs.

Keywords: Accreditation, Education, Engineers, Agronomists, Production.

INTRODUCTION

In 1985 the School of Agriculture of the UAEM was transformed into the Faculty of Agricultural Sciences. After undergoing these changes, it was consolidated as a study offer in the agricultural sector, expanding its commitment to different parts of the State of Mexico, in the central part (Toluca) offering the degrees of Agronomist Engineer in Phytotechnics, Agronomist Engineer in Industries and Agronomist Engineer in Floriculture; in the southern part of the State offering the Bachelor's Degree in Agricultural Engineering in Animal Husbandry in the Academic Extension of the Faculty of Agricultural Sciences now University Center UAEM Temascaltepec, in the municipality of Temascaltepec (Gutiérrez, 2017).

On October 21, 1985, the construction of the Professional Studies Unit in Amecameca began; In this unit, the Faculty of Agricultural Sciences, faithful to its traditions of responding

to the demands of society, offered the Bachelor's Degree in Agricultural Production Engineering in September 1986. In October 1987, the Zumpango Professional Academic Unit was founded, also offering this degree, Due to internal circumstances of the university itself, it stopped offering the Agronomist Engineer in Production curriculum in the Professional Academic Unit Amecameca, during its short life, 5 generations graduated, leaving the Professional Academic Unit Zumpango as the only space, which to date continues to be offered as an opportunity to continue professional studies in the area of Agricultural Sciences in the northwestern part of the State of Mexico.

The curriculum of the bachelor's degree began in its rigid modality, which was taught from 1987 to 2004, having as a characteristic the same common core as the specialties of Phytotechnics, Industries and Zootechnics of the Faculty of Agricultural Sciences of the UAEMex, approved in the 1984-1985 cycle, and in 2004 the curriculum came into force with its flexible version based on competencies, it has been taught for thirteen years, so currently there has been no update to it, currently 8 generations have graduated from its flexible version and it has not been evaluated by PFCE (Gutiérrez, 2017).

In 2019, the Curriculum Committee and the Department of Curricular Innovation of the Autonomous University of the State of Mexico began restructuring work, giving rise to the Mixed version 2023, approved by the University Council of the University itself.

Along with the work of modifying the Curricula, the self-evaluation is initiated to achieve accreditation by part of the Inter-institutional Committees for the Evaluation of Higher Education (CIEES) is the agency dedicated to quality assurance of educational programs and institutions of higher education, mentions that the evaluation of educational programs is a process through which it is verified that

an educational program adequately fulfills its educational purpose and that it has the necessary conditions to achieve that objective. It is carried out through an evaluation process, by contrasting the results with specific standards, constructed and periodically reviewed by academic and institutional actors, based on the best national and international practices.

The bachelor's degree obtained the distinction of Accredited for the first time since its creation in 1987, that is to say, it took nearly 34 years to obtain this distinction.

BACKGROUND

The Bachelor's Degree in Agricultural Engineering in Production since its creation back in 1986, thus fulfilling the Autonomous University of the State of Mexico, with the decentralization of professional studies in strategic points of the State of Mexico, the concern arises to create educational institutions, which were named Professional Academic Units, which were committed to offer undergraduate studies with excellent educational quality, but for purely administrative issues only remained the Professional Academic Unit of Zumpango to offer this degree and whose main purpose is to fully train a professional to analyze, The main purpose of this degree is to train a professional who analyzes, interprets and proposes alternative solutions to the limiting factors of production, supply, distribution and marketing of agricultural production systems with a focus on sustainability and to provide students with the knowledge and development of skills and abilities necessary to plan, design and operate a system of production, conservation, distribution and marketing with a sustainable approach and with humanistic, critical and proactive thinking. In this sense, higher agricultural education must have updated, flexible study programs focused on the integral development of the student, supported with scholarship programs and national and in-

ternational mobility (IAP Development Plan, 2017). In order to offer quality education, there must be human support and adequate infrastructure to guarantee the fulfillment of the functions of Teaching, Research, Dissemination, Extension and Liaison.

According to Zepeda del Valle in 2002, he mentions that the challenges of the agricultural context that agricultural science professionals in Mexico must face in the immediate future are already outlined in the situation of changes that agriculture in the country is undergoing; this challenge involves improving production processes and marketing of the agricultural enterprise; This challenge implies that producers optimize the use of the resources available to them, which entails profound changes in the way agriculture is practiced; that agricultural science professionals contribute to reorienting production processes and to understanding the reality and designing the best production options for any company; incorporating production into the international market and opening up new opportunities for growth.

Agronomists must have the skills and knowledge that will allow them to identify and develop the productive potentialities existing in rural communities, so that they can act as agents of change and promoters of development. The formation of significant contents, in order to keep up to date, requires being nourished by the reality of the region itself, investigating the problems, limitations and potentialities to achieve a sustainable and equitable development in the agricultural sector (Ramírez, et.al, 2004).

Although agricultural education has generally correlated with the pace of scientific progress in the past, that same pace is now much faster. In the global economy, food processing, sales and marketing are aspects of production processes that are of increasing importance to agricultural production and consequently to agricultural education (Ramirez, et.al, 2004).

Therefore, higher agricultural education institutions should establish relationships with research centers and communities, in order to have at hand the needs and advances in science and technology and to be able to adjust them to the thematic content of the programs of the learning units and thus have a graduate profile according to current needs.

Thirty years after its creation, the UAEM Zumpango University Center has positioned itself as a space where undergraduate studies are offered with educational quality with 11 educational programs in the northwestern part of the State of Mexico and the Bachelor's Degree in Agricultural Engineering in Production, which is one of the founders, which began work in 1987 with Industrial Design, Nursing, Sociology and Political Science and Public Administration.

The impact that the PE of Agronomist Engineer in Production has had in the region since its creation and its vision has been to seek the improvement of the general culture, to develop the necessary capabilities to identify personal and community needs, which allows them to visualize opportunities and limitations, so it is necessary to prepare in a more complete way the new human resources and provide them with the precise tools to learn skills and abilities that are transferable to move in a wide range of social and cultural environments, Everything starts when students have to perform their social service and academic internships in Federal and State agencies such as the Secretary of Agriculture and Rural Development (SADER), the National Service of Health, Safety and Agrifood Quality (SENASICA), the Secretary of Agricultural Development of the State of Mexico (SEDAGRO), and in the departments of Agricultural Development of the Municipalities of the surrounding municipalities of the State of Mexico. The concern is always latent that its graduates stand out in the labor field and put their Alma Mater on a high level.

Currently, the PE of Agricultural Engineering in Production serves a total population of 154 students, distributed as follows: for the first period 42 students (25 men and 17 women); in the third period 28 students (15 men and 13 women), for the fifth period 25 students (16 men and 9 women), for the seventh period 30 students (22 men and 8 women) and for the ninth period 28 students (17 men and 11 women). Therefore, the percentage of men in the degree program is 61.69 % and for women 38.31 % respectively.

Therefore, it can be said that the Bachelor's Degree in Agricultural Production Engineering was a success from its origin, inserted in a relevant way in the educational dynamics in the northeastern area of the State of Mexico and the country, its task has been the training of professionals in the Agricultural Sciences with a high sense of responsibility through its curriculum in the flexible version and constant updating of its study programs of the learning units that comprise it, with the intention of meeting the social and economic national and international needs.

Faced with the new challenges, Higher Agricultural Education must now have the capacity to train in an inclusive manner (where the benefits are for all), using didactics and teaching techniques as tools that guarantee a comprehensive training that will allow agronomists to face the problem of unemployment. The linkage must be thought in terms of increasing agricultural production, but without altering the ecosystem, in harmony with nature and with food security. To achieve this, it is necessary to combine traditional and conventional knowledge with new biotechnological innovations that will make it possible to find answers to the problems of food insufficiency. This is a challenge for agricultural education. It is time to initiate a linkage with producers, farmers, solving the problems and inputs needed to produce, that do not depend

on the market; where the university lands the knowledge to reality, for the benefit of their society. “The formation of professional resources plays a fundamental role and is one of the reasons for the university to project itself in a good perspective; seeking a true articulation between the processes of production and circulation of knowledge and a socialization of knowledge” (Victorino, 1997). This encourages us to improve our institutional performance in order to position ourselves as an educational program committed to consolidate achievements with responsibility and to offer quality education.

After more than three decades, the Bachelor’s Degree underwent a self-evaluation by the Inter-institutional Committees for the Evaluation of Higher Education (CIEES) and in December 2020 obtained the recognition of Accreditation for a period of three years.

The social and formal recognition granted to those Higher Education Institutions that satisfactorily comply with the integral project in the exercise and real performance of their objectives and functions, granted by the CIEES and other agencies recognized by the educational authority, to achieve this distinction the career had to comply with the following requirements:

- It is legally constituted and has official recognition
- It has educational programs in operation
- Its institutional profile is sanctioned by its highest governance body
- Has at least 5 years in operation
- Not in the process of liquidation

After complying with the above, the University sends an institutional letter together with the evaluation request form, then receives the access codes to start filling out the self-evaluation in the GAPES platform, proceeds to an external evaluation by the peer evaluators who conduct the external evaluation visit

in person, remotely or mixed, then the opinion is made where the corresponding Inter-institutional Committee submits the results obtained from the self-evaluation and external evaluation for deliberation, the evaluation report and opinion is delivered to the institution.

Buendía et al. in 2013 mentioned that the objectives of the CIEES are to contribute to the improvement of the quality of higher education in Mexico, through the diagnostic evaluation of the institutional functions of the programs offered; to contribute to the promotion of the inter-institutional external evaluation of the teaching, research, dissemination, administration and management programs of the country’s higher education institutions, ensuring that the results are used in the decision making process of the educational and governmental institutions. Based on this, the CIEES seeks to promote the constant improvement of the quality of higher education programs, through recommendations that support the IES, for the accreditation of their programs by organizations recognized by COPAES; the possibility of a double control of the quality of academic programs, to guarantee the transit of programs from level 1 to accreditation and; collaboration with the country’s educational authorities in their purpose of raising and assuring the quality of higher education.

Buendía et al. in 2013 mentioned several studies (Del Castillo, 2005; Díaz Barriga, 2008; Buendía, 2011) have contributed to the analysis of the effects of evaluation and/or accreditation as mechanisms to improve the quality of higher education. However, we note in them the absence of the perception of students - as one of the main actors - about the systems that offer information on the work carried out by the evaluating and accrediting bodies, and the results obtained. , it is not known whether within the universities

the evaluation and/or accreditation of programs has contributed to improving the quality of teaching management, carried out by the various academic-administrative bodies, and the teaching function itself, understood as the teaching-learning processes that occur in classrooms, laboratories, workshops, etc., and which result in the transformation of the subjects involved in them, professors and students.

DEVELOPMENT

At the Autonomous University of the State of Mexico, based at the UAEM Zumpango University Center, located in the Municipality of Zumpango de Ocampo, State of Mexico, since 1987, the Bachelor's Degree in Agricultural Engineering in Production has been offered, and has undergone two curricular modifications in 2004 and 2023 to the original curriculum that dates back to 1986, with the intention of meeting the current needs of society from a focus on sustainability and also continue to decrease the failure and dropout rates, as well as increase the terminal efficiency rate, offering the labor market human resources of excellent academic quality.

The work to obtain accreditation for the study program consisted of answering the self-evaluation instrument provided by the accrediting body CIEES, which consists of a program evaluation methodology focused on the purpose, with emphasis on the results of the students and the educational program, which contains minimum indicators common to any higher education program in Mexico. This methodology is made up of 5 axes, 12 evaluation categories and 49 indicators or features, where the entire teaching staff of the Bachelor's Degree in Agricultural Engineering in Production participated, requesting each support department that exists in the University Center UAEM Zumpango, to carry out its function of offering quality education.

RESULTS

Accreditation Process of the Bachelor's Degree Program in Agricultural Engineering in Production at the UAEM Zumpango University Center of the Autonomous University of the State of Mexico, located in the northwestern part of the State of Mexico, corresponded to Inter-institutional Committees for the Evaluation of Higher Education (CIEES), to carry out the review exercise of the self-evaluation of the PE. By way of background it can be said that the PE of the Bachelor's Degree began in 2019 the work of self-diagnosis for accreditation purposes and a year later submitted for consideration, where it received the level of accredited educational program.

CONCLUSIONS

The training of the Agricultural Engineer in Production is a great responsibility for the Institution where it is offered, to train human resources to meet the real needs of a society in constant evolution, so their training should be based on three pillars: a technical part, an academic part and a scientific part, which will give rise to a graduate profile that meets the expectations of the labor field with a sensitivity and social commitment to ensure the rural development of the Mexican countryside.

Agronomy should be art, and from this perspective, agronomy professionals should be men and women with a vision of sustainability, and in this way the degree will continue to position itself in the northwestern region of the State of Mexico as a quality educational offer.

As a guarantee of quality, the accreditation of academic programs informs society about quality programs and the institutions that offer them, as well as guiding the decisions of the federal and state governments, educational authorities, educational institutions, employers, parents and students, among others.

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