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Review article

Current situation of Forest Sciences in UNACIFOR. Perspectives from the competences and extensionism

Situación actual de las Ciencias Forestales en UNACIFOR. Perspectivas desde las competencias y el extensionismo

Situação atual das ciências florestais em UNACIFOR. Perspectivas de competências e extensionismo

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ABSTRACT

The major of Forest Sciences, constitutes in The National University of Forestry Sciences (UNACIFOR), of Honduras, an important pillar for its professional profile, for the social commission and the typical characteristics of Honduras as a purely forest country, with an ecological wealth and distinctive biodiversity in Central America. That is why the preparation of their teachers, students and managers is crucial to respond competently to their actions; being the objective of this article: To show the need of incorporating the vision of rural competences and extensionism in the development of Honduran forestry activity.

Keywords: Forestry; Rural extension; Competences; Professional profile; University.

RESUMEN

La carrera de Ingeniería en Ciencias Forestales, constituye en la Universidad Nacional de Ciencias Forestales (UNACIFOR), de Honduras, un pilar importante. Por su perfil profesional, por el encargo social y las características típicas de Honduras como país netamente forestal, con una riqueza ecológica y biodiversidad distintiva en Centroamérica. Es por ello que la preparación de sus profesores, estudiantes y directivos es clave para responder de manera competente a su accionar; siendo el objetivo del presente artículo: Mostrar la necesidad de incorporar la visión de las competencias y el extensionismo rural en el desarrollo de la actividad forestal hondureña.

Palabras clave: Forestal; Extensionismo rural; Competencias; Perfil profesional; Universidad.

ABSTRATO

A carreira de engenharia científica florestal fica na Universidade Nacional de Ciências Florestais (Unacifor), de Honduras, um importante pilar. Por seu perfil profissional, para a Comissão Social e as características típicas de Honduras como um país puramente florestal, com riqueza ecológica e biodiversidade distinta na América Central. É por isso que a preparação de seus professores, alunos e gerentes é fundamental para responder com competência a suas ações; Sendo o objetivo deste artigo: Mostre a necessidade de incorporar a visão das habilidades rurais e extensão no desenvolvimento da atividade florestal hondurenha.

Palavras-chave: Floresta; Extensão rural; Competências; Perfil profissional; Universidade.

INTRODUCTION

One of the environmental problems that currently affects the world is deforestation, as stated by Cobas López, M and Madera Rivero, C. (2016). Today half of the tropical forests have been lost. These areas in many countries are used for the establishment of extensive cattle raising, but this will not be sustainable, due to the rapid loss of soil fertilizers, erosion and proliferation of weeds.

It is recognized that forest engineers are responsible for ensuring the management of natural resources, according to principles of sustainability recognized worldwide and established in the forest laws of each country. Therefore, it is important to recognize that public and private sector employers evaluate the job performance of professionals who graduate from Higher Education Institutions (HEIs), based on the quality and effectiveness of the product or service provided.

In this sense, training by competencies is decisive, since the trained professionals will be linked to productive companies or services of their specialty, having the responsibility to carry out the work effectively.

A statistical study carried out by (SIES 2021), indicates that Forestry Engineering is among the majors with high employability and low enrollment. With 83.7 % employability in the first year, despite the fact that (Vargas 2003) demonstrated in a study that no more than 20 % of Forest Engineers carry out engineering activities and the rest do so at levels of technical performance, with at least 10 % of these performing at the level of a qualified operator.

That is why the training of skills in the engineering majors that UNACIFOR forges, especially Forest Science Engineering, is a necessity in university education in modern times, in response to environmental demands, rural extensionism and consequently to the professional competences aspired and needed.

To develop this research, it was necessary to use the Historical - Logical theoretical method, which according to (Torres-Miranda 2019), is integrated into an investigative structure or research process to gather evidence of events that occurred in the past and its subsequent formulation of ideas or theories about history; or to understand several rules or methodological techniques to analyze relevant data on a historical topic, allowing the information to be synthesized to build coherent information on the events that occurred associated with the object being studied.

Therefore, from this step, it was possible to establish the conceptual, contextual and theoretical framework of the object of study, as well as the essential relationships, components and dimensions that act on it. In addition, observation, documentary analysis, and interview were necessary, which allowed making decisions and corroborating the initial perception in practice.

As results of this research, three fundamental aspects are described; the analysis from the Honduran forestry sector, from the skills, extensionism and its integration to positively impact on the successful performance of forestry activity in the region.

DEVELOPEMENT

According to sector statistics, Honduras is a country with a forestry vocation, represented by 6.3 million hectares, which corresponds to 56.06 % of the national territory; with a deforestation rate that exceeds 23,303.56 hectares per year. Likewise, 1 113 340.43 hectares of pine forest, which in 2019 have been affected by the bark beetle and this problem prevails. Added to this, the forest fires that affect an average of 72 434.77 thousand hectares each year (ICF 2020)

The Forestry Sciences Engineering major developed by UNACIFOR in Honduras, must start from the premise established in the Forestry Law Protected Areas and Wildlife (LFAPVS) of Honduras, through which the National Institute for Forest Development and Conservation (ICF) governs the forestry administration in the country and intends the comprehensive training of its professionals.

For this reason, the integration of skills and rural extension work establish a bidirectional relationship that points directly to the quality of graduates and, consequently, to the performance of the Honduran forestry sector.

UNACIFOR has been growing, going from 2 to 5 majors between 2012 and 2016, locating its academic offer according to knowledge sector in the area of forestry, which represents 4% of the total national offer. As a result of this change in category, the mission was reformed and, consequently, UNACIFOR now promotes: "Train professionals of the highest technical qualification-practice in the administration of Natural Resources, Environment, Sustainable Development, Research, Extension, Conservation of Biodiversity and competitive production, contributing to the comprehensive development of peoples". For its part, the Vision seeks: "A competitive university specialized in the management of Natural Resources and the Environment, serving with high standards of quality, excellence and leadership, with a significant impact on the development of society" (UNACIFOR 2016).

1. Honduran forestry activity

The Honduran Diplomatic Information Office (2022) indicates that Honduras is a country geographically divided into 18 departments, with a broad forestry vocation, as shown in Figure 1.

Figure 1. - Geographic distribution of the country.
Source: (Oficina de Información Diplomática del Ministerio de Asuntos Exteriores de Honduras, Unión Europea y Cooperación, 2021).

The forestry sector in Honduras is directed by the National Institute for Forest Conservation and Development, Protected Areas and Wildlife (ICF), an institution that was created in 1974 under the name of the Honduran Forestry Development Corporation (COHDEFOR) and that in 2007 reformed the Forest Law of Protected Areas and Wildlife by Decree No. 98-2007, which establishes the legal regime to which the administration and management of forest resources, protected areas and wildlife in Honduras will be subject, including their protection , restoration, use, conservation and promotion, to promote sustainable development in accordance with the social, economic and cultural interest of the country.

The ICF is responsible for executing the National Forest Policy, Protected Areas and Wildlife. It also manages the public forest resource, regulates and controls the private natural resource, ensures compliance with regulations related to nature conservation and promotes development within the framework of sustainability, addressing specific issues for the management of forest resources, such as forest protection, protected areas, watersheds, climate change, wildlife, forest health and sanitation, forest governance and tenure, forest management, community forest development, reforestation, illegal logging and transportation, and the analysis and application through systems of geographic information (ICF 2007).

Operationally, the ICF executes its functions through 12 regional offices that are scattered in the 18 departments over the country, as illustrated in this image (Figure 2).

Figure 2. - Geographic distribution of ICF Regional Offices.
Source: (ICF, 2020)

According to the forest cover map, the country is categorized as follows (Table 1):

Table 1. - Area by type of cover and land use

Macro Categories	Categories	Subcategories	Area km ²	Area Hectares	Area %
Forest	broadleaf forest	moist broadleaf forest	27,947.80	2,794,779.92	24.81
		deciduous broadleaf forest	11,618.36	1,161,836.47	10.31
		mixed forest	2,393.74	239,374.01	2.12
		Tick (Acoelorrhaphe wrightii)	498.26	49,825.83	0.44
		Floodless Moist Broadleaf Forest	669.55	66,955.35	0.59
	Subtotal		**43,127.72**	**4,312,771.59**	**38.29**
	coniferous forest	dense coniferous forest	11,260.29	1,126,029.44	10
		sparse coniferous forest	6,085.51	608,551.46	5.4
		plagued pine	2,173.97	217,396.97	1.93
	Subtotal		**19,519.78**	**1,951,977.87**	**17.33**
	mangrove forest	tall mangrove forest	364.76	36,476.37	0.32
		low mangrove forest	135.89	13,588.77	0.12
	Subtotal		**500.65**	**50,065.14**	**0.44**
not forest	Agroforestry	coffee plantations	4,140.05	414,005.40	3.68
		fruit trees	58.97	5,896.93	0.05
	Subtotal		**4,199.02**	**419,902.33**	**3.73**
	agricultural crops	African palm	2,025.99	202,599.32	1.8
		Other palm species	4.09	408.74	0.0001
		musacea	67.11	6,711.14	0.06
		Sugar cane	395.51	39,550.63	0.35
		Pineapple	26.97	3,697.04	0.03
		Rice paddies	4.81	481.02	0.01
		technical agriculture	807.53	80,752.62	0.72
		pastures/crops	26,821.98	2,682,197.93	23.81
	Subtotal		**30,163.98**	**3,016,398.44**	**26.78**
	Herbaceous and/or shrubby vegetation	scattered trees	746.14	74,614.23	0.66
		Moist secondary vegetation	2,411.74	241,173.61	2.14
		deciduous secondary vegetation	4,040.79	404,079.11	3.59
		Bed sheets	2,937.05	293,705.48	2.61
	Subtotal		**10,135.72**	**1,013,572.43**	**9.00**
	built-up areas	continuous urban area	722.44	72,243.81	0.64
		discontinuous urban area	228.05	22,805.11	0.20
		Industrial and commercial zones	14.15	1,415.41	0.01
	Subtotal		**964.64**	**96,464.34**	**0.86**
	wet areas	continental humid area	1,137.52	113,752.24	1.01
		coastal wet area	188.81	18,881.15	0.17
	Subtotal		**1,326.33**	**132,633.39**	**1.18**
	salt water surfaces	Seas and oceans	19.72	1,971.67	0.02
		Saltpeter lakes and lagoons	811.58	81,158.46	0.72
		Shrimp/salt farms	208.95	20,894.57	0.19
	Subtotal		**1,040.25**	**104,024.70**	**0.92**
	fresh water surfaces	Natural freshwater lakes and lagoons	642.27	64,226.91	0.57
		artificial bodies of water	102.26	10,226.20	0.09
		Rivers and other water bodies	583.29	58,329.18	0.52
	Subtotal		**1,327.82**	**132,782.28**	**1.18**

	Open areas with little or no vegetation	beach area	26.51	2,650.98	0.02
		continental bare soil	397.20	39,719.96	0.35
	Subtotal		**423.71**	**42,370.94**	**0.38**
overall, forest			**63,148.15**	**6,314,814.59**	**56.06**
Total, not forest			**49,581.49**	**4,958,148.85**	**44.01**
Grand Total			**112,729.63**	**11,272,963.44**	**100.00**

Source: (ICF, 2020)

Thus, the ICF, as the governing institution of forest resources in Honduras, is responsible for managing and enforcing the Forest Law, Protected Areas and Wildlife (LFAPVS) in 112729.63 square kilometers that correspond to 11 272 963.44 hectares, of which 4 312 771.59 are broadleaf forest and 1 951 977.87 coniferous forest, which, added both coverages, represent 55.57 % of the country's total coverage. Therefore, the forestry potential of the country becomes evident and that is why it is necessary to train future engineers with high quality, so that they promote the forestry development of the country with efficient, effective and competent performance.

2. Perspectives from rural extensionism

Rural advisory and extension services in Honduras are pluralistic and multi-participative. In addition to the public sector, educational and research institutions participate; the producers' unions; NGOs, both national and international; as well as projects supported by bilateral or multilateral international organizations, which gives dynamism and richness in terms of learning and institutional innovations. However, it shows serious fragmentation with limited coordination and weak leadership among the actors (Digital Green 2017).

Precisely from this issue arises the need of research, to deepen from the theory, from the good practices and from the experiences of the context, not only Honduran, but from various Latin American countries such as Cuba, Mexico, Costa Rica, among others.

The rural environment poses great challenges to achieve the development of a sustainable future, yet poverty is concentrated among small farmers, day laborers and landless families. Strategies are required to improve the quality of life of rural communities by providing them with infrastructure and services; as well as promoting the creation of self-employment and permanent training programs; seek economic diversification without endangering resources for future generations; that is, consider "education for rural development" (Monsalvo-Zamora *et al.*, 2017).

In a globalized world, forestry activity must be competitive in internal and external markets, the contribution of a modern extension service covers a wide range of activities, from production to consumption. Where extension agents must work as "knowledge brokers" to facilitate teaching and learning processes (Aguirre 2012).

However, working to achieve changes in the most vulnerable forest systems, ecosystems and communities must contribute to opening up opportunities, improving social development, reducing restrictions in the financial system, helping to mitigate their environmental vulnerabilities, increasing their representation in the political arena, sociocultural and economic; and therefore, improve the vision of the highly vulnerable forestry sector.

The extension or rural advisory systems is a process of work and support, it refers to different activities carried out to provide information and services demanded by the industry and forest services, as well as other actors of the innovation system to help them develop technical skills, human, organizational; with the purpose of improving their quality of life and well-being.

Hence, the main idea is its importance as a tool to promote forestry development through the dissemination of technology in rural and forest areas and ecosystems.

Therefore, extensionism is the transfer of knowledge directed to the rural, local, community, forestry, environmental sector. It is the dissemination of new technologies, training and education in this field. The promoter and manager of rural, local and community development is an agent that favors the implementation of rural, social and forestry development processes in the broadest sense.

Retaking criteria from (Núñez *et al.*, 2021), environmental education and rural extensionism emerge as a necessary and useful tool for participatory environmental management and forestry development.

This process should not be carried out from a reductionist and fragmented approach to the environment, the rural environment, the communities, nor exclusively from the educational instances, but from a comprehensive, systemic and multifactorial approach oriented from the educational process with a cultural, ideological and creative connotation that promotes in the community the appropriation of knowledge, awareness and critical reflection regarding forestry problems from the perspective of local sustainable development.

The community constitutes one of the essential areas of extension work, according to (García-González *et al.*, 2021), in which the indissoluble links between university and society are manifested, a source of knowledge and experiences that impact the sense of belonging and the identity.

It exists specifically in the dynamics of human societies, settling in its structure and processes, responding to its demands, conditioning the mentality of its members, creating or reinforcing its community projects, among others.

It has, thus, a historical character as it is concurrent, in a dialectical reality, with the political, social, cultural, environmental, ideological and functional order of each historical moment. Nevertheless, institutions often face many difficulties in establishing the necessary points of contact with the reality that surrounds them (García-González *et al.*, 2021)

Among the guidelines that guide the work carried out by the extensionist are:

- Projection of activities in the forestry sector from the integration of its disciplines.
- Community environmental management and accompaniment to experiences
- Education, training and articulation of social actors
- Popular communication and community awareness.

- Ecological restoration in vulnerable areas.

Therefore, an external change on a social scale that does not first go through the personal is not possible, being necessary from our life practices to seek coherence between the theoretical and practical discourse. Dialogue is essential from the sharing of multiple knowledge, to stimulate collective memory, local knowledge and practices, enriching and perfecting them for the sake of a better space for all (García-González 2020).

The development, extension, technical assistance or service approaches include all research centers, companies, agencies and government organizations involved in the technology adoption process; and constitutes in some way, the form of relationship between the rural population and the organizations in terms of production and services.

The fundamental objective of this form of extension is to prepare rural actors on sustainable forest development, for decision-making, with organizational and economic techniques and for the protection of the environment.

The mission of this form of extension is to assist the producer with the systematic training of the best experiences, whether they come from research centers or from the technological innovation of the producers themselves, in addition to correcting those technological deficiencies that for different reasons occur in the production process (Pavon-Rosales 2014). All this should motivate the producer to achieve greater efficiency, to obtain an integrated rural social development, less dependent on external resources and in harmony with the environment where the productive results are the driving force of it.

The experience in Central America has shown that agroecological systems use methods and methodologies where the all actors become protagonists when creating, developing and sharing methodologies. This can be achieved within peasant organizations through peasant-to-peasant methodologies and those based on the community, peasant schools, among others (Machín-Sosa 2010).

In this sense, it is necessary to incorporate strategies that promote social technology, understood as the technology of people's action that involves the holistic vision of the human being who thinks, feels and acts.

According to the farmers' perception, they may or may not adopt a new technology out of a felt need to solve a problem, out of a curiosity, or to produce more at less cost. The adoption of a technology can be defined as its putting into practice, indicating it continuously and uninterruptedly until it is replaced or improved by another more appropriate or advantageous one (Guillén *et al.*, 2008).

The extensionist must ally with the community in order to strengthen the internal capacities that allow him, together with the producers, to plan, execute and evaluate profitable projects that, in addition, guarantee sustainable management of its natural resources. In such a way that it contributes to increasing the level of competitiveness of the sector, adding value to raw materials, improving production processes and contributing to sustainable forestry development (Zamora-Martínez 2016).

The forestry sector is not exempt and must be assumed or readapted to good practices and experiences from agricultural production and extension. The insertion of the comprehensive extension vision in forestry cannot be isolated from the teaching-learning process at the university, therefore there is a proposal of competencies and its global vision for training and subsequent performance.

3. Vision from the competencies and their integration with forestry activity

It is important to recognize the importance of training competencies in the various majors, including the Forestry Sciences major studied in UNACIFOR, and despite the fact that the professional profile lists the general competencies in which the forest engineer must be trained, the profile does not incorporate them in depth.

The insertion of competencies becomes an urgent need, the review and redesign of the professional profile of the Forest Sciences Engineering major from this holistic view should point to forestry development from various areas of the nation.

According to the criteria of García-González and García-Rodríguez (2015), which are shared, reality is changing, constantly transforming and the resolution of specific problems in each context is subject to high doses of creativity, complexity, uncertainty and skills in each specific situation. That is why the competent person will have to know how to function in less programmed situations in a complex and unstable environment, and it is precisely for this, professionals must be trained for.

The formation of skills is much more than a curriculum, it is the resolution of increasingly complex problems in diverse situations, with the use of knowledge and skills, fundamentally from the world of work, from specific experiences and previously acquired knowledge. Then, they are not transferred mechanically, but are acquired in constant practice; García-González and García Rodríguez (2015) continue to state.

The competition is outlined in order to achieve a better prepared professional, from seeking a higher qualification to taking on assignments, be trained and developed in practice, integrating various components and qualities of personality, based on efficient professional performance, thus having repercussions on him and his growth as a social being (Fernández-Larea *et al.*, 2021).

It is undeniable that forest engineers are responsible for ensuring the proper management of forest resources, based on general principles of sustainability. Hence, ensuring a combination of principles, values, attitudes, and skills will result in effective competencies in the forestry professionals that make up UNACIFOR.

The Forest Engineer receives integrated training associated with forest resources and natural resources associated with them, increasing their capacity to produce goods and services for society, restoring degraded ecosystems, and ensuring for current and future generations the permanence of the forest and the associated resources (water, soil, flora, fauna). Graduates work in various productive and environmental areas of forestry companies, environmental consultants, the Ministry of the Environment, non-governmental organizations, environmental areas of municipalities, among others.

Bienestando (2020) states that finding the professional skills that determine our value is vital to successfully facing a selection process. It also allows organizations to find the most suitable candidate to carry out the professional tasks in a given position.

Precisely for this reason it is so important to train future engineers from the university with the necessary professional skills to assume their professional activity.

For that reason, the professionals trained by UNACIFOR will provide timely responses to the highly demanding Honduran society. In this sense, it is essential that UNACIFOR carries out a review and redesign of the forest sciences major's professional profile from the general competencies of management, with integration to rural extension as an indissoluble dialectical relationship.

CONCLUSIONS

It is evident the forestry character of Honduras and its need to improve the students' training, the skills-extensionism relationship that points to their comprehensive and high-quality preparation so that they respond to their context.

UNACIFOR as the entity in charge of training and improving professionals in the forestry area, intends the extensionist activity with a marked scope in communities, rural areas, and vulnerable ecosystems.

REFERENCES

COBAS LÓPEZ, M Y MADERA RIVERO, C. 2016. El extensionismo forestal, una herramienta para el trabajo en áreas ribereòas del sector campesino en el municipio Pinar del Río, Cuba. Disponible en: http://www.cnf.org.pe/secretaria_conflat/memorias/DOCUMENTO%20MESAS/MESA%205/Milagros%20Cobas.pdf

DIGITAL GREEN. 2017. Honduras: Evaluación a Fondo de los Servicios de Extensión y Asesoramiento Proyecto de Desarrollo de Capacidades Locales de Extensión. Marzo 2017. Disponible en: https://www.digitalgreen.org/wp-content/uploads/2017/09/DLEC-Honduras-In-Depth-Assessment-Final-Espa%C3%B1ol.pdf

GARCÍA GONZÁLEZ, M., 2020. Sistematización, una prática necesaria. *Diálogos e Perspectivas Interventivas* [en línea], vol. 1, pp. 1-13. [Consulta: 13 abril 2022]. ISSN 2675-682X. DOI 10.52579/diapi.v1i.9864. Disponible en: https://revistas.uneb.br/index.php/dialogos/article/view/9864.

GARCÍA GONZÁLEZ, M Y GARCÍA RODRÍGUEZ, A. (2015). Formación de competencias de dirección desde el modelo del profesional en la carrera ingeniería forestal. Revista Universidad y Sociedad. V*ersión On-line* ISSN 2218-3620. Universidad y Sociedad vol.7 no.2 Cienfuegos mayo. -ago. 2015. Disponible en: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S2218-36202015000200009

GARCÍA GONZÁLEZ, M., GARCÍA RODRÍGUEZ, A. y GUZMÁN MIRAS, Y., 2021. Reflexiones sobre las competencias de dirección y posicionamiento ético en la Educación Superior. *Referencia Pedagógica* [en línea], vol. 9, no. 1, pp. 15-26. [Consulta: 13 abril 2022]. ISSN 2308-3042. Disponible en: http://scielo.sld.cu/scielo.php?script=sci_abstract&pid=S2308-30422021000100015&lng=es&nrm=iso&tlng=es.

GONZÁLEZ FERNÁNDEZ-LARREA, M., GONZÁLEZ GONZÁLEZ, G.R., GONZÁLEZ APORTELA, O. y BATISTA MAINEGRA, A., 2021. Educación y sociedad: universidad, extensión universitaria y comunidad. *Revista Cubana de Educación Superior* [en línea], vol. 40. [Consulta: 13 abril 2022]. ISSN 0257-4314. Disponible en: http://scielo.sld.cu/scielo.php?script=sci_abstract&pid=S0257-43142021000400020&lng=es&nrm=iso&tlng=es.

GUILLÉN, L., ALCALÁ DE M, D., FERNÁNDEZ, S., PIRE, A. y ALVAREZ, C., 2008. Percepción de los agricultores sobre el manejo integrado de plagas en el cultivo de tomate (Lycopersicum esculentum Mill.). *Revista de la Facultad de Agronomía* [en línea], vol. 25, no. 2, pp. 222-242. [Consulta: 13 abril 2022]. ISSN 0378-7818. Disponible en: http://ve.scielo.org/scielo.php?script=sci_abstract&pid=S0378-78182008000200003&lng=es&nrm=iso&tlng=es.

INSTITUTO DE CONSERVACIÓN FORESTAL, 2007. *Ley Forestal, Áreas Protegidas y Vida Silvestre. Decreto No.98, 2007* [en línea]. 2007. S.l.: Instituto de Conservación Forestal. Disponible en: https://absch.cbd.int/api/v2013/documents/A4870541-8B00-4A61-E1DB-F4BFF4372D77/attachments/203740/Ley%20forestal%20areas%20protegidas%20y%20vida%20silvestre.pdf.

INSTITUTO DE CONSERVACIÓN FORESTAL, 2020. *Anuario Estadístico Forestal de Honduras, 2019* [en línea]. Honduras: Centro de Información y Patrimonio Forestal. Unidad de Estadísticas Forestales. Disponible en: http://sigmof.icf.gob.hn/downloads/Anuario-Forestal-2019.pdf.

MACHÍN SOSA, B., ROQUE JAIME, A.M., ÁVILA LOZANO, D.R. y ROSSET, P.M., 2010. *Revolución agroecólogica: El movimiento de campesino a campesino de la ANAP en Cuba* [en línea]. Ciudad de La Habana: ANAP. Disponible en: https://rebelion.org/docs/111067.pdf.

MONSALVO ZAMORA, A., JIMÉNEZ VELÁZQUEZ, M.A., GARCÍA CUÉ, J.L., SANGERMAN-JARQUÍN, D.M., MARTÍNEZ SALDAÑA, T. y PIMENTEL EQUIHUA, J.L., 2017. Caracterización del perfil del extensionista rural en la zona oriente del Estado de México. *Revista Mexicana de Ciencias Agrícolas* [en línea], vol. 8, no. 3, pp. 503-515. [Consulta: 13 abril 2022]. ISSN 2007-0934. DOI 10.29312/remexca.v8i3.27. Disponible en: http://www.scielo.org.mx/scielo.php?script=sci_abstract&pid=S2007-09342017000300503&lng=es&nrm=iso&tlng=es.

OFICINA DE INFORMACIÓN DIPLOMÁTICA. HONDURAS. 2022. Ficha País. República de Honduras. Disponible en: https://www.exteriores.gob.es/Documents/FichasPais/HONDURAS_FICHA%20PAIS.pdf

PAVON ROSALES, M.I., 2014. Extensionismo en Cuba: estudios de caso. *Cultivos Tropicales* [en línea], vol. 35, no. 1, pp. 5-10. [Consulta: 13 abril 2022]. ISSN 0258-5936. Disponible en: http://scielo.sld.cu/scielo.php?script=sci_abstract&pid=S0258-59362014000100001&lng=es&nrm=iso&tlng=es.

ZAMORA MARTÍNEZ, M.C. 2016. Extensionismo Forestal. Revista mexicana de ciencias forestales. ISSN 2007-1132. vol.7, no.36. Disponible en: http://cienciasforestales.inifap.gob.mx/index.php/forestales/article/view/55.

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