UNIVERSIDAD DE PIURA | VICERRECTORADO DE **INVESTIGACIÓN**

FONDO DE RECONOCIMIENTO Y SOPORTE **A LA PRODUCCIÓN CIENTÍFICA EN SCOPUS**

CONVOCATORIA 2023-2

FACULTAD DE INGENIERÍA

Biomass estimation models for four priority Prosopis species: Tools required for forestry management in overexploited arid ecosystems

Biomass estimation models (BEMs) employ power-law equations to estimate aboveground biomass (AGB) using basal diameter (BD) as the independent variable. Estimating AGB is crucial as regards calculating forest biomass and productivity on the ecosystem scale. One of the most widespread biomasses in dryland ecosystems is the Prosopis genus. However, most BEMs for Prosopis have been generated using relatively small datasets and have not been revised since their early inception. The objectives of this study were (1) to build a BEM for Prosopis pallida in order to estimate the AGB and tree biomass by fraction; and (2) to analyze the differences among the BEMs for the datasets of four priority Prosopis species (P. pallida, P. laevigata, P. glandulosa, and P. juliflora) so as to fit them into a single common model. This was done using both univariate and multivariate generalized linear models and five databases obtained from literature. Our results showed that the univariate and multivariate models had a high R2 and were able to predict AGB. Tree biomass by fraction was successfully modeled using both BD and tree height. The databases regarding natural and planted Prosopis forests were statistically different, signifying that they fit into two different equations.

Journal of Arid Environments

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SJR Agricultural and Biological Sciences; Earth and Planetary Sciences; Environmental Science

Primero (Q1)

© Salazar Zarzosa Pablo, Navarro-Cerrillo Rafael M., Palacios Mc Cubbin Elva, Cruz Gastón and López Manuel

Identifying the origin of acrylamide in Peruvian panela production to inform strategies for its reduction

Maximum levels of acrylamide have been set by the European Commission (EU) 2017/2158 for several food products due to its carcinogenic properties. Although not regulated yet, European buyers are requesting maximum levels of 0.8 mg kg−1 in artisanal panela (raw cane sugar) from northern Peru. Panela in this area is produced by 600 small holder farmers and exportation guarantees a respectable price in an area with a high index of poverty. The objective here was to determine the cause of high acrylamide concentrations in panela to inform cost effective minimisation strategies. We monitored panela production from field to final product to understand the scale of the problem, identify the cause of acrylamide formation, as well as the effect of storage on its concentration. We also determined the utility of rapid kits for asparagine quantification. Our results indicate that high acrylamide levels are a widespread problem (85% of samples analysed) and there was a correlation between acrylamide and asparagine of R2 = 0.58 ($p < 0.001$), but not with any post-harvest processing variable. We estimate that with a concentration of asparagine of <0.1 g l−1 in sugarcane juice, the threshold set by buyers for acrylamide can be met. Potential solutions to reduce asparagine include varietal selection, improved agronomic practices and the use of asparaginase during panela production. However, any proposed measure should be applicable in the context of the rural Peru. Additionally, we confirm the utility of rapid and low-cost kits for measuring asparagine. This pioneering study provides a baseline for effective management for acrylamide minimization in panela.

Food Additives and Contaminants - Part A Chemistry, Analysis, Control, Exposure and Risk Assessment

https://doi.org/10.1080/19440049.2023.2187646

SJR Agricultural and Biological Sciences, Chemistry, Environmental Science, Medicine, Pharmacology, Toxicology and Pharmaceutics

Segundo (Q2)

© Atkinson Rachel, Berru Sayby, Delgado Laura, Yovera Fredy, Berru James, Robledo Yeny and Cruz Gastón.

Alkaline gases emission estimation and paraconsistent logic techniques application to label bagasse combustion conditions

When some renewable energy sources are used, such as biomass solid waste, it is necessary to measure and control pollutant emissions. Since raw sugarcane comes from a wide variety of supply sources, it is necessary to monitor the behavior of the biomass residues during the burning process to control flame stability, emissions, and combustion efficiency. The variation in the combustion temperature of biomass affects the combustion efficiency and also the emission of alkaline metals, such as potassium (K) and sodium (Na), which can cause

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corrosion in boilers. The objective of the present work is to estimate the content of alkali gases in the flames during the burning of solid biomass residues, specifically sugarcane bagasse in this case. The flame emission spectroscopy (FES) spectrometry technique is used and flame emission spectra is captured during the combustion of bagasse in a pilot furnace. The flame temperature is calculated using the two-color method together with the inverse Levenberg-Marquard method. Models and correlations from literature are used to obtain a database of emission content of sodium and potassium. Using paraconsistent logic techniques, a predictor algorithm is implemented and bagasse samples were labeled to identify similar physical combustion conditions. The results of the emission of sodium and potassium estimated for groups labeled using the algorithm of paraconsistent logic are compared and show good agreement between them. A good and reasonable agreement was found in the estimation of the emission content of potassium and sodium.

Thermal Science and Engineering Progress

https://doi.org/10.1016/j.tsep.2023.101773

SJR Chemical Engineering

Primero (Q1)

Salinas Carlos T., Castilho Tiago, da Silva Filho João Inácio, Marcelo-Aldana Daniel

Extreme Horizontal Wind Perturbations in the Mesosphere and Lower Thermosphere Over South America Associated With the 2022 Hunga Eruption

On 15 January 2022, the Hunga volcano produced a massive explosion that generated perturbations in the entire atmosphere. Nonetheless, signatures in the mesosphere and lower thermosphere (MLT) have been challenging to identify. We report MLT horizontal wind perturbations using three multistatic specular meteor radars on the west side of South America (spanning more than 3,000 km). The most notorious signal is an exceptional solitary wave with a large vertical wavelength observed around 18 UT at all three sites, with an amplitude of ~50 m/s mainly in the westward direction. Using a customized analysis, the wave is characterized as traveling at ~200 m/s, with a period of ~2 hr and a horizontal wavelength of ~1,440 km in the longitudinal direction, away from the source. The perturbation is consistent with an L1 Lamb wave mode. The signal's timing coincides with the arrival time of the tsunami triggered by the eruption.

Geophysical Research Letters

https://doi.org/10.1029/2023GL103809

SJR Earth and Planetary Sciences

Primero (Q1)

Poblet Facundo L., Chau Jorge L., Conte J. Federico, Vierinen Juha, Suclupe Jose, Liu Alan, Rodríguez Rodolfo R.

FACULTAD DE CIENCIAS ECONÓMICAS Y EMPRESARIALES

Competing for Deal Flow in Local Mortgage Markets

The U.S. mortgage market exhibits competitive instability in which some lenders rapidly emerge from the fringe to substantial market shares. Using inferred discontinuities in application acceptance models to generate local lending shocks, we analyze the impact on a lender of a surge in originations by its competitors. We show that the quickest-growing (but not the largest) competitors divert applications and originations from other lenders. Facing a quickly growing competitor, lenders charge higher interest rates, partially because of the increased risk of their loans. Loan performance suffers for other lenders as the quickest-growing competitor's originations increase.

Review of Corporate Finance Studies

https://doi.org/10.1093/rcfs/cfad001

SJR Business, Management and Accounting; Economics, Econometrics and Finance

Primero (Q1)

Darren J. Aiello, Mark J. Garmaise, Gabriel Natividad

A gender-comparative study of informal entrepreneurship: the moderating role of location decision

Motivations and access to resources for venturing differ between men and women. In developing countries, there has been an increase in businesses that do not have a specific location and persist in informality. This research aimed to evaluate, from a gender perspective, the moderating effect of the decision not to have a place in the relationship between human capital (education, experience and type of entrepreneurship) and business informality. Design/methodology/approach: Using the National Household Survey 2014–2018, a sample of 50,313 Peruvian entrepreneurs was obtained – 23,314 women and 27,002 men – who have been in business for over three years. The data were analysed with logistic regression. Findings: The results showed a moderating effect of entrepreneurship without a settled location on the relationship between education and informality in the case of women. And, for men, the moderating impact falls on the education, experience and reason for venturing that influences the formality of their businesses. Originality/value: The problem of business informality of established companies

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with more than 42 months of operation is analysed. The moderating effect of the decision not to have a specific location on the relationship between human capital and informality is explored. This work extends business informality studies in Latin America developing countries, incorporating a gender perspective.

Academia Revista Latinoamericana de Administracion

https://doi.org/10.1108/ARLA-03-2022-0040

SJR Business, Management and Accounting; Decision Sciences; Economics, Econometrics and Finance; Social Sciences

Segundo (Q2)

Silupú Brenda, Amorós Espinosa José Ernesto, Usero Belén, Montoro-Sánchez Ángeles

FACULTAD DE COMUNICACIÓN

Título Documentary Foto-óleo on Catacaos (Peru) in the Second Half of the 20th Century. The Work of Ecuadorian Manuel Quiroz

In a country where documentary photography tradition in the 20th century has been centralized in Cuzco, the foto-óleos produced between 1949 and 1950 by Ecuadorian Manuel Quiroz on Catacaos, a rural town on the northern coast of Peru, represent a novel case due to its formal and narrative characteristics and public reception during the second half of the 20th century. The article's objective is to present this case using an identification methodology on the series of original foto-óleos dedicated to Catacaos and a context study based on the analysis of documents from Quiroz's personal album about his public life in Peru. Due to the vast and heterogeneous recognition that the foto-óleo and the photographer had, we are facing an unprecedented instance in Peruvian and Latin American photography in which these images contributed to society acknowledging a regional history and identity in them.

Palabra Clave

https://doi.org/10.5294/pacla.2023.26.1.3

SJR Arts and Humanities; Social Sciences

Segundo (Q2)

Garay Andrés

Social Audience and Emotional Bonding in Marvel's Transmedia Phenomenon: An Exploration of Peruvian Digital Communities

This article explores how activities of Marvel's Peruvian social audience expanded and increased the emotional bonding among its participants through the movie Avengers: Endgame, which contributed to this transmedia phenomenon's success. The research involved a netnographic study of Peruvian Facebook and YouTube communities, analyzing 40 publications and the 2,000 most relevant comments. The results show that as the movie's premiere drew closer, social audience activities became was key to expanding and intensifying emotional bonding toward the story's narrative elements (characters, plots, and conflicts) and the general Marvel transmedia phenomenon.

International Journal of Communication

https://ijoc.org/index.php/ijoc/article/view/19603/4156

SJR Social Sciences

Primero (Q1)

Tomás Atarama-Rojas, Beatriz Feijoo

FACULTAD DE HUMANIDADES

A Medieval lyric poem and other rewrites on Estancias of Javier Sologuren

This paper studies the intertextuality in the Javier Sologuren's collection of poems entitled Estancias (1960). Javier Sologuren is one of the most important poets of the Peruvian poetic group of 1945. Through the stylistic and structural analysis of the poems, followed by some appreciations made by the author about the poetry in his critic work, the paper analyzes the intertextual relationships with other poets and traditions (like the popular medieval poetry, the Petrarchism, saint John of the Cross), the different forms of those relationships, the grades of meaning of the sources and the change that the intertextuality of Estancias meant in the poetic work of the author. The papper concludes that the poet makes a rewrite of literary texts on his poems, in which he reflects on the place of the literary tradition in the personal creative process. The rewriting becomes a poetic motive around the central theme of Estancias, for which this paper also investigates.

Anales de Literatura Hispanoamericana

https://doi.org/10.5209/alhi.85138

SJR Arts and Humanities

Tercero (Q3)

Guizado-Yampi Renato

FACULTAD DE CIENCIAS DE LA EDUCACIÓN

Incidence and Impact of the Blended Learning Model in Amazonian Indigenous Communities in Peru

The purpose of this research is to describe the incidence and impact of the Educational Model that is applied in the Rural Training Centers in Alternation (CRFA). We try to answer how young people and adolescents of the ShawiPerú Amazonian indigenous community value the functionality of learning at work. The information is collected through three categories; the first, making known the integration, transformation, and functionality of the knowledge acquired by the students; the second, the repercussion and concretion of the new knowledge in the Shawi families and the third, the contribution of the CRFA to the development and improvement of the quality of life of the Shawi community. The methodology is quantitative; the population is made up of students, former students, pedagogical staff, and collaborators. The applied instrument consisted of 41 indicators, whose Cronbach's Alpha parameter yielded a reliability of 0.957; likewise, the Kolmogorov-Smirnov test was applied, identifying that the sample does not follow a normal distribution; therefore, to analyze the information obtained from the four educational agents, the non-parametric Kruskal-Wallis and Mann-Whitney U tests were applied. The results indicate that learning contributes to improving the quality of life of families and the sustainable development of the Shawi community.

RELIEVE - Revista Electrónica de Investigación y Evaluación Educativa.
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SJR Social Sciences
Segundo (Q2)
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