

Contents

Scientific papers

Molecular and morphological identification of *Fusarium* spp., associated with the black pepper (*Piper nigrum*) cultivation in Sarapiquí and Guatuso in Costa Rica 9-30
Gabriela Chinchilla-Salazar, Mónica Blanco-Meneses and Óscar Castro-Zúñiga

Use of Organic Matter, Mountain Microorganisms (MM) and Fertioliol for the biological control of cabbage club root (*Plasmiodiophora brassicae* wor.) in the cultivation of chinese mustard (*Brassica rapa* sp. Pekinensis var. Taranko F1) 31-49
Leida Castro-Barquero, Verónica Martínez-Vargas, Oscar Castro-Zuñiga and Mónica Blanco-Meneses

Genetic correlations in afila pea (*Pisum sativum* L.) 51-61
Marcela Elizabeth Riascos-Delgado and Oscar Eduardo Checa-Coral

Effect of protection and the nutrition on water parameters and yield in hydroponic coriander wild (*Eryngium foetidum*) 63-80
Freddy Soto-Bravo and Gustavo Alonso Rodríguez-Ocampo

Comparative analysis of prices and production costs of organic and conventional cultivated vegetables 81-108
Silvia Elena Arce Quesada

In vitro effectiveness of *Trichoderma* spp. native and imported against *Fusarium oxysporum*. 109-125
Daniela Rodríguez-García and Amy Wang-Wong

Grazing intensity and nitrogen fertilization on the height variation of ryegrass (*Lolium multiflorum* Lam.) in integrated crop-livestock systems 127-137
Pablo Antonio Beltran-Barriga, Rosangela Corrêa-de Lima, André Brugnara-Soares, Tangriani Simioni-Assmann and Ali William Canaza-Cayo

Technical notes

Development of spectroscopic methods and machine learning algorithms for evaluation of some soil properties in Costa Rica 139-154
Johan Perret, José Eduardo Villalobos-Leandro, Karim Abdalla-Bolaños, Carol Lucía Fuentes-Fallas, Katherine Michelle Cuarezma-Espinoza, Esteban Nicolás Macas-Amaya, María Teresa López-Maietta and Darren Drewry

Production costs of teak (*Tectona grandis*) and melina (*Gmelina arborea*) in silvopastoral systems in the northern region of Costa Rica 155-173
Mónica Ospino-Araya, Yorlery Badilla-Valverde, Wilfrido Paniagua-Madrigal, Carlos Campos-Granados and Olman Murillo-Gamboa

Protein enrichment of two fodder species and pineapple peel through solid state fermentation 175-187
David Jiménez-Alfaro, Jorge Luis Sobalvarro-Mena and Jorge Alberto Elizondo-Salazar

Inclusion of *Vigna unguiculata* and *Musa* spp. as an alternative feeding strategy in broiler chicken 189-199
Juan Pablo Uzcátegui-Varela, Karen Collazo-Contreras and Edilmer Guillén-Molina

Julio - Diciembre 2020 • Volumen 44 • Número 2

Agronomía Costarricense

AGRONOMÍA COSTARRICENSE

REVISTA DE CIENCIAS AGRÍCOLAS

UNIVERSIDAD DE COSTA RICA
COLEGIO DE INGENIEROS AGRÓNOMOS
MINISTERIO DE AGRICULTURA Y GANADERÍA

www.cia.ucr.ac.cr
www.mag.go.cr/rev_agr/index.html



UNIVERSIDAD DE
COSTA RICA



EDITORIAL
UCR