Conduct a Microbial Soils Simulation Studies to Compare the Performance of the Different Systems

Estudos simulados em microbiologia de solos em diferentes sistemas

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Aluisio Fernando Alves Ferreira
Mestrando em Zootecnia e Biociência - Faculdade de Zootecnia e Engenharia de Alimentos
Endereço: Universidade São Paulo-USP, Rua Duque de Caxias - 225 - Jardim Elite, Pirassununga Sp, CEP 13635-900
E-mail: ferreira.consult2020@icloud.com

Cristian Epifanio Toledo
Doutor em Engenharia Agricola
Universidade Estadual de Goiás, Instituto Acadêmico de Ciências Agrárias e Sustentabilidade, Campus Oeste - Unidade Palmeiras de Goiás, Goiás – Brazil – CEP: 76190-000
E-mail: cristian.toledo@ueg.br

João Carlos Mohn Nogueira
Mestre em Engenharia Agricola
Endereço: Universidade Estadual de Goiás, Instituto Acadêmico de Ciências Agrárias e Sustentabilidade, Campus Oeste - Unidade Palmeiras de Goiás, Goiás – Brazil
E-mail: jcmnogueira1@gmail.com

Alexandre de Amorim Camargo
Acadêmico de Agronomia
Endereço: Universidade Estadual de Goiás, Instituto Acadêmico de Ciências Agrárias e Sustentabilidade, Campus Oeste - Unidade Palmeiras de Goiás, Goiás – Brazil
E-mail: cmrgo.alexandre@gmail.com

Geovana de Freitas Alves
Acadêmico de Agronomia
Endereço: Universidade Estadual de Goiás, Instituto Acadêmico de Ciências Agrárias e Sustentabilidade, Campus Oeste - Unidade Palmeiras de Goiás, Goiás – Brazil
E-mail: geo.freitass12@gmail.com

Fernando Couto de Araujo
Doutorando em Produção Animal
Endereço: Universidade Estadual de Goiás, Instituto Acadêmico de Ciências Agrárias e Sustentabilidade, Campus Oeste - Unidade Palmeiras de Goiás, Goiás – Brazil
E-mail: fernandoagrocouto@hotmail.com

ABSTRACT
The central idea of penalized regression approaches is to add at penalties term to the minimization of the sum of squared residuals **microbiological x fertilizers x stocking densities**, with the **agriculture-pastoral-forest-integrates** of shrinking small coefficients towards zero while leaving large coefficients. How in general, the parameters similarities the cost relatively total, in efficiency hectare over time **[organic fertilizers]**, in return residual stocking rate **[beef cattle]**. The studied was conduced in Farm Savanna, in municipality Waterfall Golden, evaluations compost in systems are grassland and formed per Europhyla urograndis plants in spaced by 4 (3 x 3 m) + 14 m compost per palisade grass (Urochloa brizantha cv. Marandu). At evaluated for palisade grass (wood + forage) were captures. Results, from model predictors versus cross-dates between system were practices necessaries in period linearly **[-1 < p > 1 = SD±0.09 > rGE:71.4 kg / D.M / kg^{-1} – truncation; -1 < p > 1 = SD±0,09 > r.U.E: 89.0 Kg / D.M^{-1} – tournament; -1 < p > 1 = SD±0.07 > MBP: 8.4 ų / Kg / P_2O_5 / kg^{-1}- fitness; -1 < p > 1 = SD±0.08 > A.F: 44.3 %, N.M].** Applying is modification from cultivates inserts, where modification thought structural of soils afters and inter-actives to colloids, which contributes from crossness *neutralization and organic material*.

Key words: Equation, Fixed, Frequency, Forage-mass, NIRS.

RESUMO
A ideia central das abordagens de regressão e penalidades, ao adicionar a soma dos quadrados residuais em sistemas: microbiológicos x fertilizantes x pastagem em sistemas de ILPF, com o intuito de reduzir o coeficientes zero, deixando os preditores de produção alto para o residual no bioma do Cerrado. Os parâmetros se aproximam dos custos de eficiência total por hectare ao longo do tempo [fertilizantes minerais] em valor residual de pastagem e a lotação unitária por animal. O estudo foi conduzido na Fazenda Boa Vereda, no município Cachoeira Dourada. As avaliações foram compostas em pastagem e Europhyla urograndis em espaçamento de 4 (3 x 3 m) + 14 m e (Urochloa brizantha cv. Marandu). Os resultados destes modelos em sistemas teve um período residual crescente, por tempo coletado estas amostras, sendo **[-1 < p > 1 = SD±0.09 > rGE:71.4 kg / D.M / kg^{-1} – truncation; -1 < p > 1 = SD±0,09 > r.U.E: 89.0 Kg / D.M^{-1} – tournament; -1 < p > 1 = SD±0.07 > MBP: 8.4 ų / Kg / P_2O_5 / kg^{-1}- fitness; -1 < p > 1 = SD±0.08 > A.F: 44.3 %, N.M]**. As abordagens de regressão lineares são para adicionar o valor residual ao tempo de escassez em solo "estafado", assim, obtendo um mínimo de praticas agrícolas, convertendo em resíduos microbiológicos x fertilizantes x densidades de estocagem como forma de aumentar a produção por hectare ano.

Palavras chave: Equação, Fixo, Frequencia, Forragem, NIRS.

1 INTRODUCTION

Mathematical modeling of the dynamics, organic carbon total and nitrogen-phosphorus-total is net efficiencies in attributes of algorithms, cross-dates from different systems can be hard working off steps strategies for structural crops. We are quantify and quantify microbial biomass ***1*** at ***3%*** in relation interacting, in mechanisms of control of transformation and simplest a problem of all is ones-counting consisting of a string of

ones and zeros, where the fitness is given by the samples of ones. In this introduction we will use cross-date ***fertilizer x synergism - "colloid-land"*** . However, ***confined to vitalize x subset-blends problem x truncation x cross-dates***; the formalism described here has been applicability to a modification among-st: ***carbon x nitrogen x phosphorus*** of cycles.

The tracking the growing and utilization residual over selection of differential of a perception in communities ***[microbial biomass]*** and others changes of structural ***C*** and ***N*** to long of time (Allison et al. 1997).

The agent biologic in system, are liberates per competition over-accumulate, of structural ***rizosphere x "colloids"***, how selection. Therefore truncation of formation initially, are permanent nutrients applicability for as plants, independent of the parameters of selection and mutation crops, favorably ***a bite corps*** (Anderson et al. 1997).

Shows of distribution fitness are a process evolves in selection precipitation, which jest constantly in function gives mineralization, applicable per components residuals: ***mineralization x mobilization [fitness x truncation-neutralization and organic material]*** (Da Silva et al. 2020). In sequential evolves in average increases while the width of the formation microbiological in process structural favorable per resultants: ***nitrogen-phosphorus-total x decreases of increments "Lei Liebig, Agricultural" - in pastures***.

Microbial biomass carbon-nitrogen-phosphorus total, we did reasonably hope to gain from our from effects simple problems. The effect might compare in different process structural were favorable per response of organic mineral in soil agglomeration guarantee the effects of conversion and formation in ***pastures*** ad verses per selection of equilibrium, dependency gives practice of selection indicates thought production between cultivates. Applicability and modification among-st cultivates inserts are modification thought structural of soils afters to long of times inter-actives thought-out colloids in contributes in differently crossness ***fitness x truncation-neutralization x organic material***.

The hypothesis of ***n dimensional vector,*** containing as observations on the outcome variables, over reflects of intercept ***1*** is a ***n-dimensional vector*** of ones, ***X*** is a ***(n x p)*** matrix of the observed scores on the ***p*** predictor variables, and $\boldsymbol{\beta = (\beta_1 \ldots\ldots \beta_p)'}$ is a *p*-dimensional parameter vector of regression coefficients (Erp et al. 2019). However, there is justification for reporting the posterior mode estimates: ***fitness x truncation*** among-st ***management*** *and* ***environmental.***

The central idea of penalized regression approaches is to add a penalties term to the minimization of the sum of squared residuals ***microbiological x fertilizers x stocking densities***, with the ***agriculture-pastoral-forest-integrates*** of shrinking small coefficients towards zero while leaving large coefficients. In general, the parameters similarities the cost relatively per total efficiency per hectare over time ***[fertilizer]*** and return residual stocking rate ***[beef cattle]***.

2 MATERIAL AND METHODS

The studied was conduced in *Farm Savanna*, in municipality *Waterfall Golden*, in south of state from Goias ***[altitud 459 m, longitudinal 49°28'30"W and latitudinal 18°29'30"S]*** from accorded with an classification ***Köppen and Geiger [Aw]***. The average annual from precipitation was ***1.200 at 1.500 mm*** $^{-1}$. Evaluations compost in systems are grassland and formed per Europhyla urograndis plants in spaced by 4 ***[3 x 3 m]*** + 14 m compost per palisade grass ***[Urochloa brizantha cv. Marandu]***. Anevaluated for palisade grass ***[wood + forage]*** were captured: light interception 69%, medium temperature 36ºC, humidity medium 25% and conventional pasturethe light interception 90%, medium temperature 37°C, medium humidity 24% period registered at 11:00 a.m. to 12:05 p.m.

Randomized statistical, were two appliances of fertilizers, divided in two times 66% and 34%, distribution to cased, 35 days. The nitrogen was applied on end of each grazed; *2 kg per paddock or equivalent 100 kg of N ha*$^{-1}$ *year*$^{-1}$ Silva et al. (2015) and subjected at adaptation of each grazed. Moreover, drought periods. We had employed irrigation cures one or twice hours per weeded ***[i.e., equivalent to 75 mm monthly]***.

2.1 CHEMISTRY SOIL

At characteristics chemistry are of medium texture, collected in depth ***0.0-0.2 m: pH_{H2O} = 4.8; P = 4.1 mg/kg; Ca+Mg = 1.6 cmolc/dm^{-3}; K = 0.18 cmolc/dm^{-3}; Al = 0.1 cmolc/dm^{-3}; H+Al = 3.1 cmolc/dm^{-3} and total carbon = 13.8 g/kg^{-1}*** (Embrapa, 1997).

2.2 CARBON SOIL

The organic carbon utilized the Walkey Black method. This conversion in values of organic matter dry, were used the factor of conversion ***1.724, how*** Van Bemmelen indicators, assumption a average of soil organic, which contains ***58%*** saddest organic carbon, over-accumulate of nitrogen utilized gives fertilization, at Kjeldahl methods

(Bremner, 1982; Carter et al. 1999). At samples were kept fresh and stores in a refrigerator analysis. Extraction of freeze-dried soils utilized ***0.5 M K_2SO_4*** cytoplasmic carbon compounds after desiccated and disrupted microbial cells. An extract carbon was analyzed and rapidly, utilized the colorimetric method, calculate the values symbiotic microbial bacteria contents. The calculate utilized from wasted equation, of *soil microbial biomass* = ***C-K_2SO_4/0.152*** and ***C-$NaHCO_3$/0.257***. *Microbial biomass carbon* [***MBC]*** was calculated of accorded with an equation: ***MBC = EC - k_{EC}***, ***E.C:*** difference between the efficiency and organic matter carbon; ***k,*** statistical - predictors. *Microbial biomass nitrogen **[MBN]*** was calculated of accorded with ***MBN = EN/k_{EN}***, **E.N,** is a difference between the organic matter extracted in crops in relatively "expose air-soils > box interprets" nitrogenous, conditioned in freeze-dried and utilized on calculated of efficiency ***k_{EN}*** is ***0.54***.

*Microbial biomass phosphorus **[MBP]*** were determined a difference of total ***phosphorus*** mineralization in ***$NaHCO_3$*** extracts in freeze dried samples used the procedures, earlier. The analysis ***C-K_2SO_4*** through the net energy, thought-out differed in carbon extracted and ***0.5 M K_2SO_4*** in accumulate freeze dried soil (Carter et al. 1999; Islan et al. 1997 and 2015; Jenkinson, 1981). The vigor pastures were evaluated thought stocked of dry matter in earlier tinged the ***168 days*** after a growled a reg-rowed, favorable [growled, utilized, conversed efficiencies – fertilizers].

2.3 STOCKING DENSITY

Soil samples collected twelve points every 28 days, utilized one are squad $1m^2$ with cut in biased forage. Forage and soil samples collected twelve points every 28 days. The vigor gives planted evaluated through stock rate in produced give dry matter to 21 days hereafter cuties and a revelation of day what initial an entire of first cut, available a ***quantity mass*****:** *forage mass **[kg/ha^{-1}]*** and *residues **[kg/ha^{-1}]***. The treatments were Brachiaria brizantha cv. Marandu grass with natural only completely randomized design with twelve replicates.

Reasonable predictions usually, were dependency upon the numbered of testers to be assigned to each based-forage and the productively of the based-forage. Accurately numbered steers experiment permitted at higher mean between lower squad mean error. Stocked rates grazed management and five based-forage per treatment, analyst quality and quantity. Numbered testers, put and taken pasture per treatments necessary for hider

an eighteen intercepted changed for detected at differences between the systems, calculated 38.46 per cycle pastures in five hectares.

Growled x weights - ***[i.e., feed and water withheld for 16h]*** were obtained before to start and at the end of each grazing cycle ***[28 days]***, and then the weight gain ***[kg animal $^{-1}$]*** per grazing cycle, calculated thorough difference between final and initial weights. D*aily weight gain* ***[kg animal^{-1} day $^{-1}$]*** was accounted from the weight gain per cycle divided by twenty-eight days. The supplement intake was obtained subtracting the number of supplements offered during the grazing cycle and collected "orts". Bull were randomized in paddock, the fed were *0630*, *1400*, and *1930 h day, with* access - "water"; divided in two groups of eight animals, represented [**Animal unit**: *4.29 ha $^{-1}$]***.*** The experimental area consisted of *28 paddocks of 400m ^{2}* ***[total: 1.2 ha]*** of Brachiaria brizantha cv. Marandu grass supplement with **"space box"** of 45 cm animal $^{-1}$. Type of measurement and number - stocked densities, quality ***[A.D.G, ha]*** and quantity ***[TDN per ha]***, for four bulls per pastures were evaluated quantification: forage accumulated ***[kg/ha $^{-1}$]***, paddock ***[ha]*** and ***[TDN, ha]***: ***C*** *= error of a stocked densities mean for averaged daily produced per steers expressed at coefficient of variation;* ***C'*** *= error of a stocked densities mean for yield of* ***TDN*** *per hectare; expressed as coefficient of variation;* ***t*** *= length of grazed period in days;* ***a*** *= numbered of differentiated steers grazed the stocked densities dried the trials;* ***d*** *= numbered of steers days the stocked densities was grazed and* ***s*** *= pasture size in hectare*.

2.4 ANALYSIS LABORATORY

The grass biomass were determined per paddock. The analyzes were carried out to determine the dry matter. Mixed samples of grass from each grazing cycle were collected to determine levels were analyzed for dry matter ***[105°C for 5 h]***, crude protein ***[method 988.05; AOAC, 1990]***, crude ash ***[method 942.05; AOAC, 1990]***, acid and neutral detergent fibers ***[method 973.18; AOAC, 1990]***. Acid and neutral detergent fibers were analyzed addition sodium sulfate and amylase, described per Van Soest et al. (1991).

2.5 STATISTICAL

The effects of truncation: *chemistry soil* ***[randomized complete block designs]*** x *carbon soils* ***[split-plot arrangement in a randomized complete block designs]*** *x stocked densities [****randomized complete block designs]*** *x analyses laboratories* ***[split-plot arrangement in a randomized complete block designs]***, were analyzed using the ***MIXED***

procedure in ***SPSS*** software version 2012 (SPSS Institute Inc., Cary, NC), with linear correlation type ***AR (1)*** for repeated measures analysis. Alternative designs with repeated measures were used for the *analysis, treatment, interaction of treatment x wk and block as the main effects* and qualifies and quantifies within the random effects. The linear effect of treatment on the variables were evaluated with orthogonal polynomials accounted for unequal spacing of nitrogenous levels. The results ***"j"*** were listed as least squares means and were separated ***"i"*** using curtness the option when the fixed effects considered at tendencies signification, of accorded with the author (Ferreira, 2018).

3 RESULTS

The predictors were included per percentage of communities: ***[microbial biomass carbon-nitrogen-phosphorus total] in*** characteristics means indicates throughout accumulated structural the effects modification from ***C***, ***N*** and ***P, how*** *percentage of forage-mass and sstocked densities [**randomized complete block designs]** x analyses laboratories **[split-plot arrangement in a randomized complete block designs]** x carbon soils **[split-plot arrangement in a randomized complete block designs]** x chemical soil **[randomized complete block designs]*****;*** the applied and modification earlier inserts the cultivates which modification at structural of the soils wasted interacting of organic matter and colloids of crops were contributes differed how points n dimensional contained at observations reflected in levels ***1*** and n-dimensional in vector zero; thought-out matrices of observed linear of regression in scores ***p*** predictors.

The justification, reported in posterior models, were estimated in ***fitness + truncation of information*** between the management and environmental, secondly, parameters certainty earlier standard error how natural respectively derivations and shown of procedures, how results estimates in predictor means error squads wasted multiples matrices were penalized per linear regression approaches is additional penalties in terms minimization per sum ***squared residuals microbiological + fertilizers + stocking densities – shrieked*** were small to coefficients [-1 < p], what devout large number of sampling similarities with the cost relatively per efficiency [mineral] and residual [beef cattle] coefficients.

Marginal matrices and quantifies to probability observed were utilized cross-dates how modeling interpreter in nucleus *dimensional linearly correlative to bite biological* ***[MBC, MBN and MBP] + [Nitrogenous and Phosphorus amorphous or therm reactive] = [physical soils: density, humidity gravimeter, macro, micro and total porosity and***

resilience the variables] + ***[quality and quantity mass]*** = ***[utilized and growled efficiencies]*** and a concentrated polymorphic of the procedures.

Predictors mean error squad how biased to mathematical modeled were presentation (**Tabel 1**) in high gain of increase stocked densities ***[body weight, kg]***, insights how ***management residual = nitrogen-phosphorus-total - of increments "Lei Liebig, Agricultural" in pastures*** in earlier over-accumulation how effected of stocked densities ***mineral-colloids over-accumulation + effected structural appropriate cross-fitness*** = the applicability of the system was small impact in relationships to environmental is the you gains.

The cross dates trunks over-accumulated ***[y^{train} > split plots:. stocking densities [randomized complete block designs]***; *analyses laboratories* ***[split-plot arrangement in a randomized complete block designs]***; *carbon soils* ***[split-plot arrangement in a randomized complete block designs];*** *chemical soil* ***[split-plot arrangement in a randomized complete block designs – fertilizers: 100; 150 kg/ha^{-1}; r.G.E: 70.7; 85.9 Kg/MS/kg^{-1}; r.U.E:126.9; 146.7 Kg/Ms^{-1}; M.B.N: 31.5; 59.5 ɥ/kg/N/kg^{-1}; M.B.C: 133.7; 209.5 ɥ/kg/C/kg^{-1}; S.D: 3.900; 3210 kg/ha^{-1}; A.F, %: 51.8; 57.6] were*** validation, and step set it to find a value for mean which results in a modeled that accuracy and predicted in new data, no caused generalization of the models captures in Biomass of Cerrado, converged in *fitness x truncation-neutralization-mineral-colloids in* values proximate at sidereal considered proximate to models anterior "In-nature".

Table 1. Fertilizers, N and P uptake (2012 at 2017), overview of the included to predictors

Fertilizer	***r.G.E***	***d.f***	***r.U.E***	***d.f***	***M.B.N***	***d.f***	***M.B.C***	***d.f***	***M.B.P***	***d.f***	***S.D***	***d.f***	***A.F***	***d.f***
Kg/ha	*Kg/MS/kg*		*Kg/M^1*		*ɥ/kg/N/kg*		*ɥ/kg/C/kg*		*ɩ/kg/P/kg*		*kg/ha*		*%*	
0	*		**		***		****		****		*****		*****	
100	70.7		126.9		31.5		133.7				3900.0		51.8	
150	85.9		146.7		59.5		209.5				3210.0		57.6	
P.A.D	71.4±0.09		89.0±0.09		34.7		121.7		8.4		3240.0		44.3±0.08	
ANOVA														
Source of variation														
N rate (N)	*******		******		*****		****		***		**		*	
P. A.D rate (N + P)	NS		NS		NS		NS		NS		NS		NS	
Resilience (M.P.a)	NS		NS		NS		NS		NS		NS		NS	
Micro Plot (M)	NS		NS		NS‡		NS‡		NS		NS‡		NS	

N x r.G.E	NS	NS	NS	NS	NS	NS	NS
N x r.U.F	NS	NS	NS	NS	NS	NS	NS
N x M.B.N	NS	NS	NS	NS	NS	NS	NS
N x M.B.C	NS	NS	NS	NS	NS	NS	NS
P.A.D x r.G.E	NS	NS	NS‡	NS‡	NS	NS‡	NS
P.A.D x r.U.F	NS	NS	NS	NS	NS	NS	NS
P.A.D x M.B.N	NS	NS	NS	NS	NS	NS	NS
P.A.D x M.B.C	NS	NS	NS‡	NS‡	NS	NS‡	NS
P.A.D x M.B.P	NS	NS	NS	NS	NS	NS	NS
N x P.A.D x r.G.E x r.U.F x M.B.N x M.B.C x M.B.P	NS	NS	NS	NS	NS	NS	NS
V.C, %	4.2[bac]	1.5	3.3[a]	1.5	NS	2.8[ab]	1.5

*Mean and squad error mean significantly at the 0.05 < p > 0.10 levels (2-tailed).

This describes over trajectory started input flux converged thought exponential associated at ***[microbial soil-plant delivery + water + PAD] and*** variance between yours characteristics how ***[treatment x environmental]*** at practices were necessaries in period linearly positive ***[-1 < P > 1 = SD±0,09>rGE:71.4 Kg/MS/kg^{-1} = truncation; -1 < P > 1 = SD±0,09>rUE:89.0 Kg/Ms^{-1} = tournament; -1 < P > 1 = SD±0,07>MBP: 8.4 ɥ/kg/P/kg^{-1} = fitness; -1 < P > 1 = SD±0,08>AF: 44.3 % = novel means]***.

We will focus between ***truncation + tournament + fitness + novel means: were determined how predictor mean squad error between yours dates; compared frequencies in management intensities between the pastures; the used of levels and responses of fertilizers [y^{val} > predictors] = integrals equation + mineral-phosphorus + management integrals to pastures in used residuals in constant management linear + no caused a "recall or re-modeled residual over the management applicable over the introduce of the process of formation gives pastures" + body weight^^{0,75} + at differences equalization of the requirements nutritional from gain residuals and characteristics gives rots predictors + initial + behavior crops + variables decays rapidly + to long period between mean novel models + phase linear in equilibrium Cartesian + variables environmental = [MBP ɥ/kg/P/kg^{-1}; microbial ingestion/mineral colloids; humid gravimeter: g.g^{-1}; total porosity: m^3.m^{-3} and density: g.cm^{-3}]***.

Microbial crops representation in gain equation and evolution between algorithms ***[y^{val} > Residuals: NPT = WB + SD]*** *and [residual growled efficiencies****: rGE = 50-100 kg ha^{-1} N > 29.1 at 51.9 kg dry matter ha^{-1} of N and 100 kg ha^{-1}*** presentation in formation numeric ***12% N + 52% P_20_5 = 51.9 kg dry matter ha^{-1} of N + 78 kg dry matter ha^{-1} of P_20_5.*** *Residual utilization efficiency****: rUF =*** *elevate of levels N****: 67.7% and P_20_5: 77.85% in MBC + MBN + MBP + growled and utilized,*** *efficiencies* presentation in formation numeric in results partially ***[83,0 kg of dry matter/kg of N; 70.0 kg of dry matter/100 kg of dry matter]*** *over effected potentials of pasture intermittent* ***90%,*** *over point good is* ***40-45%*** *in decrease cuts****.*** *Nitrogenous and Phosphorus amorphous or therm reactive* ***(52% P_20_5, 12% N) 12% N * 100 = 12 kg/ha^{-1} of N:*** *increase forage mass****: 9.4%.*** *The accumulation* ***[50 at 200 kg ha^{-1} of N:*** *increase forage mass* ***78.4%.*** *The production of forage mass****: 29.1 at 51.9 kg ha^{-1} day*** *of dry matter pasture intermittent. The absolute frequencies* ***(%);*** *stocked densities* ***= kg of dry matter/100 kg of dry matter, body weight or kg/ha^{-1}****], no hove problems implicated to PMSE;* due similar to multilevel of the models resultants to factors incorporates at mean squad errors and signification levels estimates in one split standards.

The normal mixture primers were discrete mix-levels of a ***[MBC + MBN + MBP]*** around substantially differentiated between systems and continuous pastures; mixtures the stocked densities normal based in cross-dates collected how ***frequency global [%]*** is *variable coefficient* ***[rGE: 4.2% – truncation; rUE: 1.5% - tournament; AF: 1.5% - novel means]; derivative is*** in substantial linear of regression; assigned how results formulates; considerable a specification of the level initial; and options of mixtures: ***[$y^{validation}$ + Residuals$^{\wedge 0.001}$ > NPT = WB + SD / rGE + rUF + MBC + MBN + MBP + N x Nitrogenous $^{\wedge 0.84}$ + Phosphorus amorphous or therm reactive$^{\wedge 0.78}$]*** after presentation at equations in parameters distributed between at variables, were labeled the uniform between mixtures how more flexibility gives variables of behavior, how component of formation growled and utilized efficiencies over probability of select, which were relevant between the intervals [dependencies; credibility and investigation > earlier efficiencies].

The values for means in pastures intensities between numbers: minimizes some cuts and loss function of selection; lower indicated between mass + carbon total and extracted between colloid-lands; conditions negatives between effects and soluble of soils-plants; microbial soils and net prior can be obtained as the following scale mixture of normal applicably in systems of high impact ***"gases of effect environmental"***; scale

mixture, ***truncation > tournament > fitness > novel means between cycles*** – stocking densities is variable of *ingestion soils* - ***MBP ɥ/kg/P/kg^{-1} microbial ingestion/mineral colloids – humid gravimeter: g.g^{-1} + total porosity: m^3.m^{-3} + density: g.cm^{-3} ; absolutes frequencies > variables coefficients > predictor mean squad error > accurate and predictors***.

The normalizing constant were correspond to posterior modes for ***[β_j]*** equivalent to the ***estimates microbial-carbon-nitrogen-phosphorus-total:*** equivalent a expression illustrates how the net residuals and concentrated to levels:. ***Nitrogenous$^{\wedge 0.84}$: 150.0 kg ha^{-1}; Phosphorus amorphous or therm reactive$^{\wedge 0.78}$ (N + P) 100.0 ha^{-1} + 187.5 kg ha^{-1}***, a combination of the double-exponential prior, the ***two penalized:. fitness and truncation-neutralization-mineral-colloids*** are parameters determine the relative influence a response linear positively in systems how benefit net growled and utilization efficiencies favorable at parts:. ***microbiological x fertilizers x stocking densities***, linearly regression can be obtained as the following scale ***mixture of fertile x stocking densities***.

Contour plot representation the sum of squared residuals, classical lasso constraint region ***MBC; MBN; MBP [left].***, bi variate lasso ***[past is present on soils] distribution [right]., and the classical and point estimates; net compensatory; quantity mass; individual controls; microbiological x fertilizers x stocking densities; shows the concentrate plots of the differential shrinkage priors for two predictors [β_1 and β_2]*** while shows the ***contour plots:. Captured oxygen; stocking of organic-mineral-colloids****; mass where at least one element is close to zero*, while the ridge has most prior mass where both elements are close to zero.

Frequentist penalization has ***microbiological x fertilizers x stocking densities x fitness x truncation-neutralization-mineral-colloids,*** focused on convex penalization, due compensatory to their convenience ***[Phosphorus amorphous or therm reactive$^{\wedge 0.78}$]*** for optimization procedures. It is recombination nitrogenous and ***[Phosphorus amorphous or therm reactive$^{\wedge 0.78}$]*** use multiple starting values in the case of non-convex priors due to possible multilevel of the posterior distribution in relation to nutritional outplacement mineral between: *fertilizers x stocking densities x fitness x treatments*, contour plots representing the bi-variate prior distribution of the shrinkage priors, this illustrates how the groups ***[truncation-neutralization-mineral-colloids x fertilizers]*** simultaneously shrinks elements belonging to the same groups ***[stocking densities x fitness]***.

Differences between the estimated ***[Nitrogenous^0.84: 150.0 kg ha-1 + Phosphorus amorphous or therm reactive^0.78 (N + P) 100.0 ha-1 + 187.5 kg ha-1]*** and trues effects for ***truncation-neutralization-mineral-colloids***, for the shrinkage priors in a simple normal model with the ***[PMSE]*** x parameters ***[EQM]:*** fixed in ***[-1 < p > 1]***.

Prior shrinkage of high-dimensional effect mineral-colloid is important to obtain behavior between solutions and specifically, for the ridge and scale farm net priors, the priors varies greatly. Note how the difference for the effect mineral-colloidal and behavior specifics. The mixture priors result in the largest differences between true and estimated small effects ***[MBP: µ/kg/P/kg-1; MBN: µ/kg/N/kg-1; MBC: µ/kg/C/kg-1]*** the illustrations indicate that when the penalty parameter is fixed, only the local treatments.

As the effected growled and utilized efficiencies, the regularized thought-out processes of formation priors and results estimates in larges effects. Error squared mean priors allow for shrinkage of small effects while estimating large effects correctly. Priors is specifically for the penalty parameters, so that the certainly in this parallel is taken into account, all shrinkage priors show this inserted behavior.

As modification structural on soils; afters to long of times per mean of interacting is intersperses colloids; recombination is contributes differently to the ***fitness x truncation-neutralization x organic material****;* the number dimensional from vector containing the observations on the outcome variable; reflects the intercept; ***1*** is an n-dimensional vector of ones; ***X*** is an ***[n x p]*** matrix of the observes scores on the p predictor variables; and $\boldsymbol{\beta = (\beta_1 \ldots\ldots \beta_p)'}$ is a *p-dimensional parameter vector of regression coefficients* and posterior mode estimates: ***fitness x truncation to management x environmental***.

Penalized regression approaches is to add a penalties term to the minimization of the sum of squared quadratic mean: ***microbiological x fertilizers x stocking densities***, with the ***agriculture-pastoral-forest-integrates*** of shrinking higher coefficients towards zero while leaving lower coefficients. In general, the parameters similarities the cost relatively per *total efficiency per hectare over time* ***[organic fertilizers]*** and *return residual stocking rate* ***[beef cattle]***.

The optimal credibility between mix is selected used the criteria given prediction mean squad error for earlier replication from cased ***[exemplify:. animal]***, estimate the used to predicted between responses on the outcome variable of the test set, for which the actual responses and available.

Therefore, were one optimal between parameters settings consideration the modeling will give precised, how an responses of no dependency to problems of management and environmental, how practical necessaries to convince between others predictors.

Robust alternative and between prior distribution and second parameters were inserted the *"evidence"* procedures estimates in parameters how mean squad errors and estimates sensitivity in results positively ***[p – mean].***

4 DISCUSSES

The method is quite expensive and time consuming and may be more practical for *microbial biomass nitrogenous* ***[B_N]*** is a difference between nitrogen mineral what is require on factor ***K_N*** per proportion give *microbial biomass nitrogen mineral on relation* ***C:N*** microbial present in soil with material mineralization on formation [***C, N, P and S]*** (McGill et al. 1986). It cannot distinguish and mixture for problems high saturation basis in nutrients, important for plants Mertens (1995) and addition to carbon or nitrogen mineralization in response of control respiratory for plant.

Elucidate the intricate interrelationship and control mechanism of the input/output fluxes of nutritional and *energy in soil ecosystems* a reliable quantification to requires *microbial biomass* (Olsen et al. 1954). This is use by fertilizer in grass intensity have advantages interaction to approximate the point economic of the using quantity mass it is comparison with the squall understanding effect by iteration in long times (Da Silva et al. 2020; Silveira et al. 2008).

Efficiency fertilization is one modification quality mass per period times insert applicability level moderate or by accord with the plain and management (Schimel et al. 1986).

As with any technological research, the ultimate compact soils of studies on production machines agricultural intensities crops elevate from no benefits used by to producer, or by agricultural custodian, it is highly questionable whether ***resilience soils > total macroporosity*** in times restricted or shrinking research that end in itself successful technological transfer of [compaction: decrease humid gravimeter and increase risk in area of cultivates, several practical value of productions] neglected there is a high risk of wasting considerable time and funds on futile studies, how partially with extension services and productions and grazing livestock on an specific unit of pasture where animals have unrestricted and uninterrupted access throughout the time period when

grazing is allowed, it was appliance the continuous grazing used is synonymous stocking rate interaction how resilience soil-plants (Moreira et al. 2009; Consalter et. al. 2014).

The frequently and recognized in applicability super-compacts or sub-parts, limited in soil-plants biomass and intended in risk or restrict of leaf or green material present per unit area is canopy cover tillage primers; total macroporosity and resilience soils increase and modification as ideotype grassland present per unit area interaction is interference in actions physical and substantial of herbage; method rotational of cultivates and in an attempt to describe the degree of agricultural management is short duration agricultural and livestock cattle was classification as an acceptable compass (Didoné et al. 2014).

The microbial and total carbon support the development give plant, cycling the nutrients for plant, maintain a health soil to long of time (USDA-NRCS, 2019; Fierer, 2017). The microbial biomass drives nutrient mineralization and is a small but labile source of major plant nutrients (Dick, 1992; Yank et al. 2019).

The growth of the tropical pasture is basically initial by the ***forage mass per light interception 95%***, the pattern of regrowth changes, occur reduction in the residual forage mass remaining on the land after harvest. The model applicant on area by integration on texture medium for tillage crops from growing physiology for productions grass crop and infrequent under management continuous grassland with short modification (Oliveira et al. 2007; Vogel and Fey. 2016).

5 CONCLUSION

The normalizing constant were correspond to posterior modes for ***[β_j]*** equivalent to the ***estimates microbial-carbon-nitrogen-phosphorus-total:*** equivalent a expression illustrates how the net residuals and concentrated to levels:. ***Nitrogenous$^{\wedge 0.84}$: 150.0 kg ha^{-1}; Phosphorus amorphous or therm reactive$^{\wedge 0.78}$ (N + P) 100.0 ha^{-1} + 187.5 kg ha^{-1}***, a combination of the double-exponential prior, the ***two penalized:. fitness and truncation-neutralization-mineral-colloids*** are parameters determine the relative influence a response linear positively in systems how benefit net growled and utilization efficiencies favorable at parts:. ***microbiological x fertilizers x stocking densities***, linearly regression can be obtained as the following scale ***mixture of fertile x stocking densities***.

Contour plot representation the sum of squared residuals, classical lasso constraint region ***MBC; MBN; MBP [left].,*** bi variate lasso ***[past is present on soils]*** *distribution* ***[right].,*** *and the classical and point estimates; net compensatory; quantity mass;*

individual controls; microbiological x fertilizers x stocking densities; shows the concentrate plots of the differential shrinkage priors for two predictors ***[β1 and β2]*** while shows the contour plots:. captured oxygen; stocking of organic-mineral-colloids; mass where at least one element is close to zero, while the ridge has most prior mass where both elements are close to zero.

The agent biologic in system, are liberates per competition over-accumulate, in structural ***rizosphere crops*** + ***"colloids"***, how selection, in sequential evolves in average increases while the width of the formation microbiological in process structural favorable per resultants: ***nitrogen-phosphorus-total x decreases of increments "Lei Liebig, Agricultural" - in pastures,*** observations on the outcome variables, over reflects of intercept ***1*** is a ***n-dimensional vector*** of ones, ***X*** is a ***(n + p)*** matrices, which the scores have *p*-dimensional parameter vector of regression additional to term minimums residuals ***fertilizers + stocking densities and maximum residuals microbiological + fertilization*** from efficiencies mineral and beef cattle.

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Compliance with ethical standards

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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