productivity reached 334.1 $m^3$/ha, an increase of 57.6 % comparing to the control and 10.3 % comparing to highest productivity without gypsum. This increase is related to the better growth and distribution of the root system throughout the soil profile, giving more access to nutrients and water to the plants. Even though eucalyptus is a plant tolerant to low fertility soils, it responds to soil fertility buildup in the soil profile. In that sense, eucalyptus fertilization programs should be rethought.

**Keywords:** tropical soil; soil conditioner; soil conditioning; gypsum; soil profile; soil fertility
**Financial support:** NUTREE Group, FAPEMIG, and Metalsider Florestal

**(3872 - 1122) Evaluation of coffee ground influence on the soil pH**

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The disposal waste in the soil has historically been considered a solution for the most diverse sectors of society, materials that can provide improvements in chemical properties of soil, correcting acidity. The coffee grounds are generated from roasting and milling of the coffee in the industrial process, and have a low value and abundant waste, and can bring great benefits to the soil if applied correctly. Thus, the objective of this study was to evaluate the effects of coffee grounds on soil pH. The experiment was carried out at the University of Western Santa Catarina – UNOESC, campus Xanxerê at Xanxerê/SC, Brazil, from September to December, 2017. During the period of 105 days, the soil characterized as Dystrophic Red Latosol/Oxisoil was incubated in plastic bags with 2 kg of soil and percentages of coffee grounds. The experimental design was completely randomized, with six treatments: 0, 1, 2, 4, 8 and 16% (v/v) of coffee grounds in soil mixtures and five replicates. The soil moisture was maintained at 60% of the field capacity and at 105 days the water pH (1: 1) was evaluated. The data were submitted to regression analysis and the Mitscherlich model was the one that matched the data. The analyses have been done with R program (R Core Team, 2015). The water soil pH increases according to the dose of coffee grounds, stabilizing from the 10.85% (v / v) dose, the dose that ensured 99% of the maximum asymptote to pH was 8.79% (v / v), increasing soil pH from 5.1 to 5.9. Regarding for the characterization of the residue used, it was observed that it presents in its composition considerable amount of nutrients enhancing the plant nutrition besides conditioning the pH of the soil.

**Keywords:** residues, acidity correction, spent coffee
**Financial support:** Celulose Irani, Unoesc – Xanxerê

**(6989 - 2896) Evaluation of dispersant solutions for the determination of available phosphorus in Particule Size fractions in a Brazilian Sandy Soil**

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Due to the complexity of soil organic matter, it is necessary to identify the components that are homogeneous in relation to properties, dynamics and function. Using the particle size fractionation it is possible to obtain fractions that serve as indicative of the quality and quantity of organic matter in soils. The objective of this work was to evaluate different dispersant solutions for subsequent soil fractionation, and analysis of available P in particulate organic matter and in the heavy fraction. The granulometric fractionation was performed, according to Cambardella and Elliot et al. (1992), in brazilian sandy soil samples. 10 g soil sample was placed in contact with 100 mL dispersing solution, with stirring at 130 rpm for 15 h. Were used the dispersion in water, with sodium hexametaphosphate (HMP), NaOH 1 mol $L^{-1}$ solution, $Ca(OH)_2$ 0,01 mol $L^{-1}$ solution and ultrasonic dispersion (400 J mL). After dispersion, the material was passed through a 0.053 mm sieve. The material retained in the sieve was dried and weighed, called particulate organic matter (MOP). The heavy fraction (PF), which passed through the sieve, was also dry and heavy. The available P of the granulometric fractions obtained with the different dispersants was determined. From the results obtained, the dispersing solutions with HMP and NaOH were the most efficient with obtaining 129 and 120 g of clay per kg of soil, respectively. The dispersants $Ca(OH)_2$, water and ultrasonic application were not efficient for dispersion of the sandy soil sample. Samples with HMP dispersant showed phosphorus contamination in both granulometric fractions. There was no statistical difference on the levels of P between the different extractive solutions. The available P contents varied between 0.17 and 3.77 mg $kg^{-1}$ in particulate organic matter, and between 2.90 and 5.97 mg $kg^{-1}$ in the heavy fraction. The extractive solution NaOH 1 mol $L^{-1}$ can replace the solution with HMP in granulometric fractionation studies in sandy soils, when it is desired to determine the available P in the fractions.

**Keywords:** Particulate organic matter Organic Matter Fractionation Dispersant Solution
**Financial support:** Embrapa

**(9567 - 1792) Evaluation of organic and inorganic residues for organic production systems and small properties of paraguay**

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Organic or inorganic residues can be used as inputs to maintain or improve soil fertility in organic production and in the 250,000 small properties (<20 ha) with limited capital for access to inputs and responsible in the prevailing food production in the country. The objective of this study was to evaluate the effect of organic and inorganic residues in the soil and agricultural products of the small property. Were evaluated doses of ash obtained from the soybean processing industry, doses of compost made from residues of the sugar industry and dose of bovine manure from the farm itself. The nine doses of ash were evaluated in a Rhodic Paleudult with a sandy texture and in a Rhodic Kandiudox with a clay loam texture, in pots. Two types and seven doses of compost were evaluated in pots, in a Typic Paleudalf of the area of influence of the sugar industry, using wheat (*Triticum vulgare*) as an indicator plant. Three doses of bovine manure were evaluated in a small property on a Rhodic Paleudult with sandy texture in a sequence of *Manihot esculenta* - *Zea mays* L. Ash doses produced pH increases in sandy soil from 3.88 to 5.79 and in clay loam soil, from 4.3 to 5.60 with 2.5 and 7.5 t ha-1 of ash, as well as allowed to neutralize exchangeable acidity; the pH even reached 9.19 in the sandy soil. The ash also increase the available phosphorus, low to high level, in both soils; increased levels of exchangeable potassium, going from low to high level in sandy soil and increased the exchangeable magnesium concentration in both soils. The two compost evaluated increased the aerial and radicular dry matter of the wheat, they did not produce significant increases in interchangeable calcium, magnesium and potassium levels and had differentiated effects on the pH levels and available phosphorus. The application of bovine manure produced a significant increase in the production of the cassava-corn sequence. The yield of commercial roots of cassava (in kg ha-1) was adjusted to an equation y=6,956.5 x + 29,189.6 with R2=0.92, in the range of 0 to 30 Mg ha-1 of manure