

## Chemical Evaluation Of By-Products Of The Grape Industry As Potential Agricultural Fertilizers

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### Abstract

The grape industry, specifically the wine industry, is generating by-products rich in nutrients, which are underutilized and often end up being pollutants of the environment. These byproducts are the bagasse, the stem and the grape seed in a proportion of 20% of the grape industrialized, that is, more than 100,000 tons/year in the Serra Gaucha. The use of winemaking by-products in the production of raw materials is a pioneering activity in Brazil and possibly in the world. This study is a characterization of products generated by the composting of this rich material, in order to assess its nutrient availability and possible contaminants. Also, the by-product of wine production in this pioneering project in Serra Gaucha were used and studied. The analyzes were done on the by-products and raw materials used; in the final products of the BEIFORT<sup>®</sup> line, both organic and organic certified fertilizer, solids, and liquid organic fertilizers 867 and 645 AHF. Organic nutrients, macro and micronutrients, important nutrients for agriculture and contaminants were analyzed using appropriated analytical techniques. It was concluded that the byproducts of the grape industrialization have optimal levels of organic loads and a good amount of important mineral elements to plants. However, in the course of composting, the concentration of Cu and Cr increases in the final solid compost, limiting the possible organic certification. Liquid extracts, despite not having high concentrations of nutrients, present a minimum of elements considered pollutants. In the final products only the uncertified organic fertilizer showed concentrations of Zn, Cu and Cr above the allowed levels, however the mixtures of inputs solved the problem. In other Beifort<sup>®</sup> products, especially liquid products, the presence of contaminants is irrelevant and the organic loads and nutrients were satisfactory.

### Keywords

BEIFORT<sup>®</sup> Supplies; Chemical Characterization; Chemical Characterization Of By-Products Of Winemaking; Organic And Organo Agricultural Inputs

