

**PROJECT - SELECTION FOR TOLERANT CULTIVAR OF COMMON BEANS
(Phaseolus vulgaris L.) TO LOW LEVELS OF SOIL FERTILITY**

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The common bean (*Phaseolus vulgaris* L.) is a demanding plant in phosphorus; a important nutrient for growth plants. Its presence in soil promotes the bean growth and raises the grain production . The beans mainly constitute one of the important alternatives of income and food for the agricultural population of all Brazil, that consumes it as dry grain. It is produced in such a way by small as by great producers that mainly use bred cultivars. In some regions it has been evidenced low levels of productivity, which have been mainly attributed to the creation of productive but demanding cultivars in mineral nutrition.

The great majority of Brazilian soil is acid presenting low fertility with high capacity to phosphorus retention what it leads to the necessity of application of raised doses of phosphates, contributing for cost increases, and to reduce the natural no renewable resources that originate phosphorus soluble fertilizers.

Phosphorus is the nutrient of bigger lack in the Brazilian savanna to the side of calcium and zinc. Researchers of the Embrapa Rice and Beans have verified that the P₂O₅ requirement to be applied in soil for many crops varies between 30 and 120 kg/ha, also used in the selection process of soil low fertility tolerant cultivar, contributing for the increase in the production costs. Adjusted phosphorus doses make possible to get high productivity and economic return.

The removed amounts of phosphorus for beans are generally low; 3.50 kg/ton of grain, mainly when compared with the nitrogen and potassium that are required 100 and 90 kg/ha, respectively. However, despite the apparent decrease concentration in soil solution , the phosphorus concentration as well as its speed of its reestablishment, are not enough to take care of crop need. Adequate phosphorus supply favors the root system growth increasing the absorption of water and nutrients; it increases the plant vigor in no till system; it favors the budding and the fruition and increases the product quality.

In soil, the phosphorus affect the production and grain quality. However, for different soil texture there is a special curves of production. The immobilization of phosphate is higher in clay texts, where are observed greater occurrences of iron and aluminum oxides and low pH values. Crops developed in sandy soils need less phosphorus fertilizer than clay soil due to higher phosphorus adsorption in clay soil.

Many Brazilian researchers show excellent answers of phosphorus in the rise of the income of the bean crop, in function of phosphorus application. For the common bean, this nutrient also has proportionate the great and more frequent answers. Low phosphorus availability in the soil affects negatively the plant growth and grain production. Although the phosphorus is the nutrient better studied in the crop bean, low knowledge, still, regarding the distinguishing parameters of the modern cultivar needs launched in the market.

For higher knowledge about tolerant plant to low fertility soil , a project of cultivar selection is being presented objecting to observe, to select and to multiply tolerant lines/cultivars tolerant to low fertility soil. The plants will be developed in low fertility Latosol of savanna that will have the acidity amended, receiving basic fertilization in accordance with the official fertilizer recommendation. The plants will be harvested when the first blossom of first cultivar presents floral button. As plant parameter will be observed plant height, dry matter production, leaf area, top plant weight part, weight of root system and total plant weight.

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