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Forms of application of phosphorus to soybean in a production system with annual crops

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In most of the Brazilian regions it is possible to grow two crop seasons per year, summer crops and second crop (second harvest). Brazilian soils majority are composed of iron and aluminum oxides, the application of the nutrient to the haul can cause large losses of P by adsorption, reducing fertilization efficiency and grain yield. In the study, evaluated the effect of P application on yield of annual crops (crop 2015/16: soybean / wheat and crop 2016/17: maize / beans), cultivated under a Oxysol, with built fertility under no-tillage 15 years ago. The experiment was carried out in an experimental area in Brazil (21º15 '40' south latitude), at 1,020 m altitude. A completely randomized block experimental design was adopted with 5 treatments and five replications. The treatments consisted of 1: Control (without P); 2- P of each crop in the sowing furrow of summer and winter crops; 3: Production system fertilization, applied in the haul 30 days before sowing the summer crop; 4- Production system fertilization, applied to sowing the summer crop; 5: P total of the system in the sowing of the winter culture. 2015/16 crop season, the recommended fertilizations for soybean and wheat were 54 and 108 kg ha^{-1} of P_2O_5, respectively. Already for 2016/17 crop season, the recommended fertilizations for maize and beans were the same, 81 kg ha^{-1} of P_2O_5. Thus, the system fertilization (sum of the two crops) corresponded to 162 kg ha^{-1} of P_2O_5. There was no effect of the forms of P application on summer crops (soybean and corn). However, the highest yield of wheat and bean occurred with the application of P in the sowing furrow, probably because it was cultivated at the time of lower rainfall (rainfall).