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Module 6.3-1 Phosphorus placement for soybeans grown on tropical soils.

Tropical soils are generally low in P, which is a condition that can severely limit plant development and yield, especially for crops with high P demand such as soybeans. Due to the high fixation capacity of these soils, P application must be managed in a way to minimize the competition for P between the soil and plant, thereby maximizing P uptake. A sub-surface band application is recommended under such conditions.

As an example, **Figure 1** shows the effect of P fertilizer placement on soybean grain yield under two soil conditions: low P (original soil) and high P (having received a previous broadcast application of 200 kg P_2O_5/ha incorporated into the top 20 cm). For soils low in P, the positive effect of banding over broadcast P application allows for the use of lower rates to obtain the maximum yield. On the other hand, in soils with a previously incorporated broadcast application the method of application (band or broadcast) was not distinguishable since the competition for available P is reduced and more P is available for the growing crop.

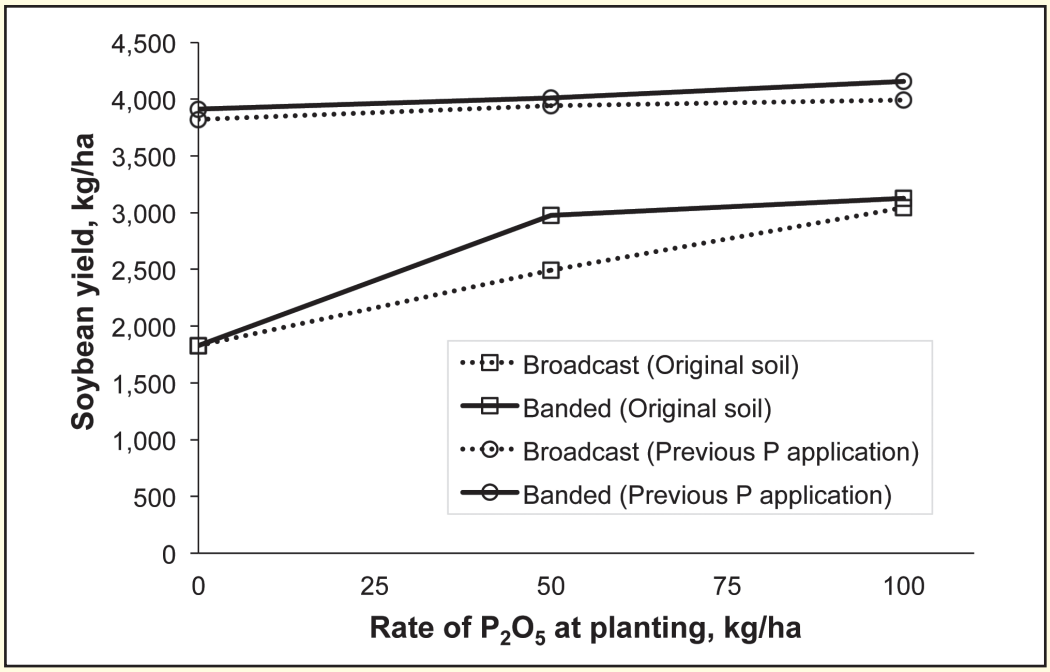

Figure 1. Soybean grain yield in response to rates of P applied broadcast or banded in two different soil condition (original low P soil and soil with previous P application) (Research Foundation MT, 2011 - data not published).

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