



## ADDRESSING SOIL FERTILITY

With fertilizer prices remaining high, farmers around the world are dramatically cutting back on fertilizer use and are looking more seriously at other alternatives to maintain yields.

### Alternative to High Fertilizer Prices

Unquestionably, plants need nutrients to support growth, yield and crop quality. Yet an increasingly significant group of farmers in North America, Brazil and elsewhere are discovering that there are alternative means of accessing plant available nutrients and achieve the same or increased yield while reducing the use of fertilizer inputs. Penegetic products for crop production have been used in Brazil for since 1999 and every year more farmland and additional agricultural regions are being introduced to this alternative agronomic approach.

In Brazil, based on analyzing a soil test, fertilizer use can be reduced by 20 – 30% when penegetic k and/or penegetic p is used. Besides savings on input costs, field results on hundreds of farms have indicated that yields are maintained or increased (and crop quality also increases). At the same time, while there may be concern that the land is simply being “mined of its nutrients” that has not proven to be the case. For instance, on the home farm of the Ma Shou Tao Group (the Penegetic distributor in Brazil) Penegetic products have been used for the past 12 years. Despite annual reductions in fertilizer inputs, each year they experience improvements in soil texture and soil fertility.

Although, not intended to suggest this is indicative of results that would be achieved on all farms, or in North America, the following are results farmers experienced during the 2008-09 crop year growing soybeans in Brazil, using penegetic p & k with fertilizer and with no fertilizer inputs.

#### RESULTS: GROWING SOYBEANS IN BRAZIL - USING PENERGETIC P AND K (2008-9 Crop Year)

##### A - Producer Zeferino Bilibio

without fertilizer with penegetic	3,475 kg/ha (51 bu/ac)
with 125 kg/ha (110 lb/ac) of fertilizer + penegetic	3,225 kg/ha (47 bu/ac)
with 290 kg/ha (255 lb/ac) fertilizer + no penegetic	2,725 kg/ha (40 bu/ac)

##### B - Marcos Noro

without fertilizer with penegetic	3,975 kg/ha (59 bu/ac)
without fertilizer without penegetic	3,600 kg/ha (53 bu/ac)
with 330 kg/ha (290 lb/ac) fertilizer + no penegetic	3,920 kg/ha (58 bu/ac)

##### C - Vitor Hugo Sonda

without fertilizer with penegetic	3,975 kg/ha (59 bu/ac)
with 330 kg/ha (290 lb/ac) fertilizer + no penegetic	3,650 kg/ha (54 bu/ac)

#### Notes:

- Penegetic use refers to using both penegetic p and penegetic k at a rate of 3.5 oz. (100 grams) per acre, each, spray applied. Penegetic p was applied as two applications of 1.75 oz. / ac., between growth stages V4 and R1, with a minimum of 15 days between applications. Penegetic k was applied before seeding.

Penergetic products are used in Brazil on a wide variety of crops – including soybeans, corn, wheat, potatoes, rice, sugar cane, cotton, coffee, etc. Yet, as Jonadan Ma, CEO of the Ma Shou Tao Group (Penergetic Distributor in Brazil), says *“Penergetic products are from Switzerland and when we first introduced the concept of using them to farmers in Brazil they would say ‘just because it works in Europe does not mean it will work here’. Yet, over the past 12+ years we have witnessed that penergetic p and k work well with any plant type and under any growing conditions and Brazilian farmers have now embraced the penergetic concept.”*

As Romeu Borgus, a farmer with Agropecuaria Takaoka-laras SP of Brazil, states: *“The application of penergetic k and penergetic p provides us with greater stability of production, especially in years when we experience moisture deficiency. The corn and soybeans appear to become more resistant resulting in increased productivity.”*

More recently, Brazilian farmers have discovered that when Penergetic p and k are used it improves the biology of their soil so much that, in the case of corn and soybeans, it is no longer necessary to apply phosphate fertilizer. Penergetic p and k accelerate the conversion of organic phosphate to inorganic phosphate and then plant-available phosphate. This, combined with penergetic products contributing to greater root development, enables the plants to better access the available phosphate. Despite phosphate being removed with the harvested grain, each year after harvest soil tests reveal a higher available phosphorus levels than before planting.

Penergetic products are now used around the world and are part of the solution for farmers seeking to maintain crop yield, while reducing fertilizer inputs without mining the soil of its nutrients.

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Vitor Hugo Sonda's Corn Field

Penergetic k & p (no fertilizer)