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Module 3.2-2 Elemental sulphur fertilizer applied to soybean grown on Brazilian cerrado soils is highly effective.

Soils low in S are almost as common as soils low in P in Brazil. Deficiency symptoms and responses to S application are observed in both annual and perennial crops (Malavolta and Moraes, 2007). The use of elemental S mixed with bentonite in pastille form (90% S) has been an alternative to more soluble forms of S used to improve the fertility of S in Brazilian soils. In natural conditions, S is taken up predominantly in the sulfate form (Malavolta, 2006). However, when elemental S is applied to the soil, autotrophic bacteria, mostly *Thiobacillus genus*, oxidize it resulting in the production of sulfuric acid, which dissociates to sulfate (Moreira and Siqueira, 2006). Fertilizers based on elemental S and bentonite are know worldwide to be effective in correcting S deficiencies, with no harm to the environment. (Ceccotti, 1994; Saik, 1995; Brockley, 2004). The most common S sources in Brazilian agriculture are single superphosphate and phosphogypsum. In a comparative study, elemental S in pastille form showed similar performance compared to other sources, even with a broadcast application (**Table 1**).

Table 1. Soybean plant tissue S and yield in response to source and method of application. (Unpublished).

| Source | Application method | S rate, kg/ha | Plant tissue S, g/kg | Yield, kg/ha |
|--------------------|--------------------|---------------|----------------------|--------------|
| Control | - | - | 1.59 | 2,790 |
| SSP | Banded | 60 | 2.17 | 3,252 |
| Gypsum | Broadcast | 60 | 2.48 | 3,228 |
| Elemental S | Banded | 60 | 2.26 | 3,072 |
| Elemental S | Broadcast | 60 | 2.75 | 3,234 |

References

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