



Biochar in southern central coastal Vietnam



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Southern central coastal Vietnam

The southern central coastal provinces of Vietnam are home to Vietnam's poorest farmers. The region is characterised by low rainfall and 500,000 ha of sandy soils developed mostly from weathered granite. Agricultural production on these soils is limited by their low water and nutrient holding capacity. Tree crops such as cashew and mango, intercropped with peanuts and cassava, are widely grown in the region. Table grapes are also produced in Ninh Thuan province.

Biochar in Vietnam

As one of the largest producers of rice Vietnam could potentially produce large volumes of biochar from rice hulls. A rice hull char product with a carbon content > 35% is already produced as a by-product of the cottage rice cake industry. The rice hull char is used by the nursery industry and the resource has potential as an amendment to improve the sandy soils of southern central Vietnam.

Two field experiments were established in early 2009 as part of an ACIAR funded project. Rice hull biochar (33% C) used in the experiments was sourced from the Philippines.

Experiment 1. Cashew. Biochar 25t ha⁻¹

- T1. single bund + fertiliser (farmer practice)
- T2. double bund+ biochar + fertiliser
- T3. double bund + biochar + ½ rate fertiliser
- T4. single bund + ½ rate fertiliser.

Experiment 2. Groundnut. Biochar 10t ha⁻¹

- T1. control - no inputs
- T2. manure 5t ha⁻¹
- T3. NPK (30:90:60)
- T4. biochar
- T5. manure (5t ha⁻¹) + NPK (30:90:60)
- T6. biochar manure 5t ha⁻¹
- T7. biochar + NPK (30:90:60)
- T8. biochar manure 5t ha⁻¹ + NPK (30:90:60).

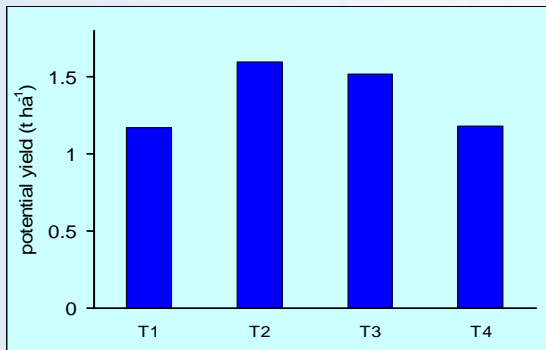


Figure 1: Experiment 1: Cashew potential yield (potential yield assessed while crop still on tree)

Results

Experiments are still in progress but preliminary data indicate a positive yield response to biochar amendments for both cashew and groundnut when used in combination with fertilisers.

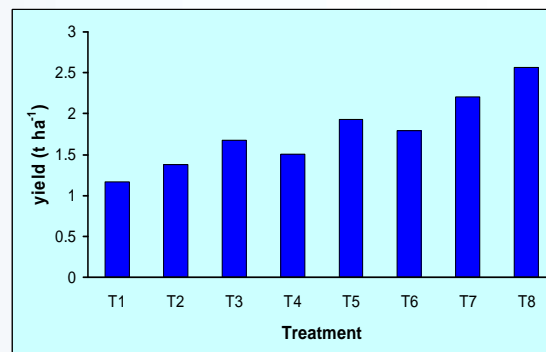


Figure 2: Experiment 2: Ground nut yield

Looking forward

Results from the first cashew crop will be ready for analysis end of June. Data will also be collected from a second cashew crop cycle to be completed in 2010. Data for the first groundnut crop is currently being analysed. The analysis will include an assessment of the impact of biochar on soil characteristics and plant nutrient uptake. A second groundnut crop will be grown during the 2009 wet season.

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