

## ***Interactive comment on “Does *Jatropha curcas* L. show resistance to drought in the Sahelian zone of West Africa? A case study from Burkina Faso” by P. Bayen et al.***

**Anonymous Referee #1**

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### 1. General comment

Generally in Burkina Faso, the local name of *Jatropha curcas* in Plateau Central region of Burkina Faso shows a defiance of plantation of this species by local people because of its toxicity. *Jatropha* (*Jatropha curcas*) is an oil producing shrub, which is easy to grow and thrives in desert climates. It can grow on abandoned or sandy soils and a dried cutting pushed into the soil will take just two days to take root, producing seed within a year. In Sub-Saharan countries (Burkina Faso, Mali, ...) this plant is traditionally cultivated in hedges usually around gardens, to protect the soil and surrounding crops from wind and water erosion.

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In the managed degraded land with WSC techniques of Burkina Faso, the recommendations are to plant multipurpose trees chosen by local people to protect them against animal feed. I am not sure if this plant would be planted in managed soils by people even the seeds are used to produce oil for machine and mould into balls of soap, for dermatological product used for skin problems.

This experiment shows the unsuitability of *Jatropha curcas* to restore denuded land in the Sahelian zone but not in sandy soil. But another experiment conducted in Niger is opposite. A trial of the ten accessions for *Jatropha curcas* was carried out at regional Agricultural Research Center of Maradi in Niger, with aim to evaluate the performance of this plant accessions. The results revealed that there is no significant difference between accessions tested for height and diameter. All the accessions were a survival rate up to 80% in sahelo-saharian conditions with fruit production. The yield value of 511 and 445 kg per hectare respectively obtained from Katil 13 and GB 14 in 2012. (in Habou et al. J. Appl. Biosci. 2014. Évaluation du Potentiel de dix accessions de *Jatropha Curcas* L. (Euphorbiaceae) au Niger).

If most of seedlings died in the first years after planting due to soil condition maybe you have to consider if plantation survival was not affected by negative environmental effects local biological conditions like termites and rabbits etc.

There may well be 'varieties' which are more cold and dryness tolerant than others. What are the varieties used in this experiment?

In Figure 1 on Phytogeographic domains and geographic locations of 2 the experimental sites, the maps' legend is none readable and it is better to take off name of Africa and Burkina out of map and in Burkina Faso map insert the name of the two sites Dagandé and Namoungou or Site 1 and Site 2.

In Figure 2 on Mean rainfall and mean temperatures record for the weather station of Dori (Sahelian zone) and Fada N'Gourma (Sudanian zone), near the experimental sites, between 1983 and 2013, it seems of lack of temperature data from 2009 to 2013

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for Namoungou site. So it would be opportune to limit graphic to 2009.

In figure 4 according to the Effect of treatments on soil water content at different depth levels in October 2012 the use of the same scale for soil water content in percentage would be better to compare the difference between treatment and the two sites.

## 2. Specific comment

Why did the holes, 10-15 cm depth, instead off 15-25cm in literature? How the plantation was made in half moons with holes dug in the half moon hole and witch dimensions? Where did the plantation made in half moons, in the pits or in the earth ridges?

The bibliographic references in sub Saharan region according to *Jatropha curcas* could be improved by others papers in Niger, Mali and Senegal

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Interactive comment on Solid Earth Discuss., 7, 639, 2015.