

## Visit to Bilibize, Cabo Delgado 25<sup>th</sup> to 27<sup>th</sup> May 2007

Jacob Zulu and Flemming Nielsen visited Bilibize in Cabo Delgado from 25<sup>th</sup> to 27<sup>th</sup> May 2007. It was the end of the rainy season with occasional showers still occurring.

This small report focus on the research issues only.

A workshop was held with representatives of farmers groups that have already planted some *Jatropha*. Field visits took place South-West of Bilibize and to the West, inside the national reserve.

The many *Jatropha curcas* plants that have been planted over the last year are growing well but growth is very uneven between and within plots. This is common and probably related to the genetic diversity of the seeds. Growth also appears to be slower than in Manica Province but sampling and measurements will be needed to confirm this.

Seedlings from nurseries as well as direct seeding had been used. Many farmers did not know what planting distance to use so it varied significantly. Row inter-cropping with sesame *Sesamum indicum* was common as was boundary planting. At several locations water logging had resulted in die back. The ground water surface was at many place within a meter of the soil surface and water logging is common during the rainy season. *Jatropha* is known to be highly sensitive to water logging so it is important that farmers are made aware of this fact when choosing planting sites. This issues was emphasised during the workshop.

At the workshop harvest time was discussed with farmers. They told that they currently harvest *Jatropha* throughout the year and that this regime suits them better than a short intensive harvest season.

Farmers were encouraged to intercrop with nitrogen fixing crops (legumes) because *Jatropha* is known to respond well to extra nitrogen (and phosphorous).

Due to the big genetic variation in *Jatropha* farmers were encouraged to be careful in their selection of seeds for propagation by only using seeds from the best performing plants. Bulk harvesting of *Jatropha* plots should therefore be avoided if the seeds are to be used for propagation.

Pest damage was common but not severe. The main pest appears to be the Golden Flea beetle (*Aphthona* spp.) that has also been reported as a pest on *Jatropha* in Zimbabwe and Kenya. The *Jatropha* plants we observed were either less than two years old or more than fifteen years old. Only in the younger plants did we see Flea beetle damage.

I got the impression that Flea beetle damage was more severe in areas where the vegetation suggested low soil fertility. More investigation is required to test this hypothesis but if true we may have to focus on soil fertility instead of organic pesticides etc.



*Illustration 1: Golden Flea Beetle and the damage caused by it on Jatropha curcas leafs*

The total destruction of Jatropha plots that yellow coloured Flea Beetles have caused in Manica Province has not been observed in Cabo Delgado.

A green larvae was also observed a few times on damaged leafs of young plants together with spots of white spin. It appears to do less damage than the Flea Beetles.



*Illustration 2: Unidentified larvae on damaged Jatropha curcas leaf.*

On the old *Jatropha* plants (15+ years) large numbers of Rainbow Shield Bug (*Calidea dregii*) was observed. They are known as a pest of cotton but also breeds on sunflower, sorghum, tobacco, castor oil and other crops. They feed by piercing young seeds, causing seed shedding. We observed them sitting on green and yellow seeds of *Jatropha curcas* as well as inside dried seed pods. Further studies will be required to establish what damage they cause in *Jatropha*. In cotton the pesticide Permethrin is used to kill Green Shield Bug.



*Illustration 3: Rainbow Shield Bug (Calidea dregii) on Jatropha curcas leaf.*

## **Actions**

The following actions were agreed:

- To establish the importance of insect damage on yield 2-3 Jatropha plots will be divided in two with one part being sprayed with pesticide whenever pest attacks occurs and the other left without treatment. The yield of the two parts of each plot will be measured separately to enable estimation of yield loss caused by pests.
- A competition will be organised for farmer solutions to the Flea Beetle attack. The prize is likely to be a radio.
- Data collection sheets will be prepared by IIAM (Flemming) to be used in Bilibize for data collection from farmers' fields.
- IIAM (Pommes Gagnaux?) will prepare protocols for on-farm trials with local methods for controlling Flea Beetles.
- In July Flemming Nielsen and Pommes Gagnaux will visit Bilibize to make a more comprehensive survey of pests and diseases affecting Jatropha.
- For the next rainy season protocols and seeds will be ready for on-farm variety trials. For this seasons seeds were obtained too late.