



## Benin Oils Project October 1998 — January 2005

Benin relies heavily on cotton and the oil pressed from cottonseed. Cotton accounts for 80% of Benin's exports and Beninese farmers are heavily dependent on the cotton subsector for their cash income. However, despite Beninese attachment to the crop, research has shown that cottonseed oil is not the best choice of oil to produce. A 1996 study by the LARES Institute concluded that a large majority of farmers are actually losing money on their cotton crops. In fact, the attachment that farmers have to the crop is not related to its profitability, but rather to the guarantee it offers in terms of market and price. In spite of its precipitous decline, the high price of cottonseed on the international market makes processing cottonseed into oil less profitable when compared to other oilseeds. The negative impact of cotton on the environment also makes it a poor choice in terms of sustainability.

EnterpriseWorks' interventions in the edible oils sectors of Benin focus on two areas: [Sunflower](#) and [Palm Oil](#).

### Sunflower

Because of Benin's reliance on cotton - and the dangers inherent in such reliance due to fluctuating international markets - the government of Benin has been seeking to identify and promote crops that can be produced and processed domestically, creating jobs and improving farmer income. After the



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**Economic Participants**  
1,421 --- in 2001

**Enterprises Assisted**  
69 --- in 2001

**Total Monetary Benefits**  
\$389,352 --- in 2001

**Cumulative TMB**  
\$712,374

**Project Budget**  
\$790,453

**Primary Funder**  
USAID/Benin

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Beninese government introduced several alternative crops that failed to address the country's edible oil problem, EnterpriseWorks Worldwide introduced and tested several varieties of sunflower in North Benin.

The results showed clearly that the sunflower seeds had relatively high yield and oil content, and better quality and price of the finished oil make it a good alternative or complement to cotton. In this project, EnterpriseWorks is partnering with Fludor, a producer and extractor of cottonseed in Benin, to promote the use of sunflower seeds as an oil-producing alternative.

## Objectives

- Publicize advantages of cultivating sunflowers to rural farmers and consumers
- Recruit and train sunflower producers
- Procure and distribute seed and fertilizer through Fludor
- Provide technical follow-up such as advice, data collection, and analysis of results
- Collect and store harvested seed before processing
- Appreciate the quality of the harvest through analysis of seeds, seedcakes, and oil extraction efficiency
- Research plots to determine which varieties of sunflower are best suited to Benin
- Promote beekeeping as a complementary activity
- Establish village-level oil extraction as a means to diversify income sources

## Progress Report

**Higher than expected sunflower yields harvested.** Tests on three varieties of hybrid sunflower seed were concluded during the last quarter 2002. The seed produced from 27 farmers (slightly less than ten hectares) was weighed, paid for and stored. Average yields were 1.4 tons per hectare, with a maximum of 2.6 tons.

**Local awareness created.** More than 500 farmers have expressed an interest in producing sunflower during the up-coming rainy season.

**Technical evaluation and training initiated.** Tests on the oil content of the harvested seed will be conducted during the next quarter. The seed will subsequently be used for village demonstrations of oil extraction using the Bielenberg manual ram press. These demonstrations will begin when and if funding is awarded by USAID-Benin for EnterpriseWorks' project to develop a Beninese sunflower subsector

EW/Benin is awaiting funding of an expanded effort to promote sunflower cultivation, honey

production and village-based oil extraction and commercialization.

## Additional Resources

- [Fludor website](#)
- [USAID website](#)

## Palm Oil

Palm oil production has always been an important part of the economy of Benin and a staple in the Beninese diet. In fact, it currently provides about one-half of the dietary fat consumed by Benin's population. The purpose of this project was to promote the production and sale of the Caltech expeller. This expeller extracts palm oil much more efficiently than traditional extraction methods and is a viable low-cost alternative to the large-scale oil mills that presently exist in Benin. These large-scale palm oil mills suffer from a number of drawbacks, including low capacity use rates due to low product prices, and the lack of an efficient raw materials collection system.

Traditional small-scale processing techniques, on the other hand, are very time-consuming and arduous, and produce relatively low extraction rates. Field testing of the Caltech expeller in Benin found that its extraction rates were about one-third higher than the traditional method of processing. EW/Benin is also promoting commercialization of hybrid oil palm trees.

Although this project focuses primarily on palm oil production, Bielenberg presses - both manual and motorized - will also be tested for use in the processing of other oilseeds, including peanuts, sesame seeds, and sunflower seeds. The expeller and the press will both be marketed under the DEKANME brand name, which means "palm plantation" in the local language. Dissemination of the Caltech expellers will make improved processing available to large numbers of oil palm growers and will also reduce labor requirements, potentially stimulating greater production of palm fruit.



## Objectives

- Conduct field and market testing on two versions of the Caltech expeller and on the Bielenberg press.
- Identify local metal and machine shops to manufacture and commercialize the selected presses and train two to three workshops by the end of year four.
- In collaboration with press manufacturers and vendors, conduct 100 demonstrations for 2,000 palm fruit producers.
- Sell 200 oil presses and expellers.
- Increase incomes for 4,000 participants by the end of year four.

## Progress Report

**Four new manufacturers were trained in last quarter 2002.** Two in Cotonou and two in Porto Novo, brings the number of metal shops trained to produce the Dekanme Press to six. They have each been sold specially crafted tooling designed to assist in the construction of the oil expellers and have also each been given an order to produce one motorized press. Seventeen motorized presses and six manual presses were sold in 2002, totaling a 104 presses sold to date over the project. Manufacturers and users will accrue over \$89,000 in profits from the presses sold in 2002 alone.

**Hybrid palm sales continue to increase.** Sales of hybrid palms jumped another 14 percent in 2002. To date, 658,945 hybrid palm trees have been sold over the course of the project, with economic profits totaling \$220,000. Many of these are grown and sold from the 37 model oil palm plantations, managed either by women's cooperatives or parent-student associations.

**Guidance and supervision is continually necessary for palm oil production.** After the second straight year of uncovering the poor accounting habits practiced by press owners in economic impact studies, correctional measures were taken. In January, 2002, EW/Benin produced bookkeeping documents for each of the 24 operating presses and subsequently trained the owners in their use. These documents are extremely simple and will not only enable the press owners to measure their businesses' operations, but will assist EW/Benin in monitoring project impact in the future. Technical training is ongoing as well. Ten new press owners - ten women's cooperatives whose press purchases were financed on credit - received technical training in the operation of a Dekanme Press at the Palm Oil Research Station in Pobe.

**Testing and subsequent mechanical improvements continue.** EW/Benin has tested two Dekanme Press prototypes, one involving a two-step chain drive to reduce the motor's speed and the second using a discarded Peugeot transmission. This second prototype-which adapts a discarded Peugeot transmission in the place of the gearbox-presents more advantages. The Peugeot transmissions can be found and purchased locally without difficulty. They are also

inexpensive and their use could subsequently reduce the price of the Dekanme Press by more than 300,000 CFA (about \$500). Other advantages are that local mechanics know how to maintain the transmissions, and the Peugeot prototype uses belts, which are easier to maintain and can be manufactured locally.

## **Lessons Learned**

**Hybrid palm tree found to be more productive.** The improved tenera palm produces eight to ten tons of fruit per hectare, of which industrial processes can extract up to 22 percent as oil. The traditional dura variety of palm produces only 800 kilograms of fruit per hectare, and its fruit yields only 6 percent oil. Women's cooperatives and parent-student associations have planted the hybrid tenera palm trees and have received technical assistance from EW/Benin in maintaining their palm nurseries. After a successful marketing plan including radio and television advertising, and the use of parent-student associations as sales agents, 190,000 of the 220,000 plants available have been sold.