

# KEEP ROLLING



Dung beetles will be rolling up the themes again. When we publish a Newsletter on a certain theme, we hope that readers will digest it so that new ideas can emerge. In this section "Keep Rolling" you have a chance to present further information about themes highlighted in previous issues, thus giving still more food for thought and action.

## New technology for peanuts

*In the ILEIA Newsletter "After the harvest", Barbara Böni wrote how women in Mali developed an improved press for palm oil. In this article, Mansour Fall tells his story of improving a press for peanuts.*

### Mansour Fall

**P**eanuts are no small potatoes in Senegal. As the country's primary export, this "miracle crop" is a food source, income generator, animal sustainer - and a major dilemma. Peanuts grow and survive under conditions that few other multi-purpose crops could withstand. Under ideal conditions, their nitrogen fixation qualities help improve soil fertility. Peanut sales are always guaranteed at a fixed price which is often slightly better than nothing but sufficient to make life livable for a few more months at least. However, producing peanuts as a monoculture over a prolonged time without an adequate fallow period is a major cause of soil degradation in the 60,000 km<sup>2</sup> zone known as the Peanut Basin. Another drawback is that, when improperly handled and stored, peanuts can produce fungi and mold containing hazardous aflatoxin.

Despite such environmental liabilities, as most Senegalese grandmothers will testify, this crop is a tough nut to crack when it comes to versatility. Peanuts can be eaten raw or enjoyed roasted as a snack. They are irreplaceable in the traditional Senegalese meal of boiled rice and peanut stew and they make other dishes more palatable. As an added bonus, peanuts are biodegradable. The straw, the hulls and the meal are fed to animals whose very survival depends on these by-products. The hulls can also be used as fuel, replacing firewood and charcoal which are becoming increasingly expensive for the pocketbook and for the environment. Perhaps most importantly, peanuts provide the only source of vegetable oil available in Senegal, which is the principal producer and exporter of peanut oil in Africa. The National Oil Factory pro-

duces it commercially at prices that most Senegalese women can ill afford. But with a little imagination and a lot of back-breaking work, they have always managed to produce their own peanut oil. As a child, I remember my grandmother shouting for me to appear toute suite to give the oil press an extra twist, squeezing the last drop out of the crushed peanut meal inside. It was nice to be a hero. My ability to "pump iron", even if it was a peanut press, always won Grandma's heart.

### Looking for change

Over the years, things have changed. Grandma has long since retired from the pressing business. I've grown up and moved several hundred kilometers away from home. Even the peanut isn't the same: it's smaller and produces more oil. The only thing that hasn't changed is the press.

The traditional oil press, in use since the dawn of peanut civilization, consists of a "right side up technology." Heavy steel plates are attached to a screwing device which is installed inside a perforated metal bowl. The peanuts, which are first broken and crushed, are poured into a jute bag and placed in the perforated container. The plates are then screwed down tightly. Once the required pressure is reached, they are locked in place for about an hour, until the oil flow diminishes. To capture the last few precious drops, the screw must be turned manually - strenuous work for the women who do this daily. Finally, the peanut meal becomes a rock-hard block and the plate can budge no further. It is then unscrewed, the meal is removed and the process is repeated.

Many attempts have been made to lighten Grandma's work but the results hardly amounted to, well, peanuts.

Designers tried to devise a mechanism which would maximum give pressure with minimal effort. This was not an easy task for local craftsmen and importing presses was not feasible. Shipping and handling costs alone would outweigh yearly profits.

### Answer found in museum

During a recent trip to Canada, I observed a sunflower milling press on display in a Quebec agricultural museum. To the North American, it was an obsolete tool preserved for nostalgia. For this African, it was an ingenious technology idea waiting to be born. Its secret seemed unbelievably simple. I dubbed it the "upside down" technology. The sunflower seed press used the same principle as the peanut press but in reverse. A simple car jack was all that was required to make Grandma's life a lot easier. Instead of applying the pressure right side down on the steel plates as in the traditional peanut press, the new technology applies force upside down, using a hydraulic auto jack. It is installed under the press, squeezing the plates upward which requires far less exertion. It is the perfect model of truly appropriate technology in a development setting as it is





- low cost
- easy to construct, maintain and repair locally.
- a significant time and labour saver
- readily adapted, requiring little training or transition period by users
- likely to inspire local craftsmen to innovate ideas for other devices
- easily operated by women and children and is fun to use.

Once home in Senegal, I got down to work with local blacksmiths. We figured out the technical specifications and moved right to the production of a proto-type. There was nothing complicated about it. Within 50 days we had a new product ready for a trial run. Who better to test drive it than Grandma? At 90 years old, she could hardly screw in a light bulb. But with the new machine, but even she managed to squeeze out much more oil using the new technology.

### **Successful enterprise**

World Vision's Women in Development (WID) team began conducting product test surveys about the press with village women's associations. The acceptance rate was impressive. The cost was so low and the income generating potential so high, that practically every village could afford one. Orders poured in. Our project evaluation team went back to the drawing board, working with three blacksmiths to refine the design. They are now independently producing the presses and selling them to villagers. Over the past year, 30 units have been sold to women's groups in villages where World Vision is working. Fifty more units have already been ordered, and many more requests are expected.

In addition to easing the women's own workload, the presses provide an additional source of income. The women's associations who own the presses charge 10% of the amount of oil pressed for use of the machine. For example, for a typical day's work of 320 litres pressed, the fee is 32 litres of oil. This can be quickly sold below the market price of 250 FCFA per litre for a revenue of 8,000 FCFA. Depreciation cost on the machine is a mere half franc per litre of oil pressed. Labour costs are nil as the women in the association take turns running the machine voluntarily. It is rewarding to know that these 75,000 FCFA machines play a more useful role than inappropriate milling machines (costing 1 million FCFA) installed in some communities which have since been abandoned because of unforeseen maintenance problems.

We do not expect the new press to revolutionise the country, although it would allow Grandma to produce single-handedly enough oil for her whole village.

