

Successful birth of IVF kid at CIRG Makhdoom

The scientists of the Central Institute for Research on Goats Makhdoom, Farah, Mathura have been successful in producing an *in vitro* fertilized (IVF) goat kid which has been named as Krishna. A team of four scientists had



IVF kid with a non-descript surrogate doe

been working on the project for the past three years towards developing in house capabilities to establish pregnancy in goat using IVF technique. Goat oocytes used in this technique were collected by follicle puncture method from the ovaries brought from an abattoir located at Agra. Recovered oocytes were subsequently cultured in TCM-199 supplemented with 20% estrus goat serum (EGS) for 27 hrs at 38.5°C and 5% CO₂ in humidified air of a CO₂ incubator. Matured oocytes were then co-incubated for 18 hrs with spermatozoa collected from Sirohi buck in a 50 µl drop of fertilization medium supplemented with 20% EGS and 10 µg/ml of heparin. Fertilized oocytes were further allowed to grow in TCM-199 supplemented with 10% goat serum with oviductal epithelial cells for 84 hrs at 38.5°C and 5% CO₂ in humidified air of a CO₂ incubator and then finally transferred in to a surrogate goat of non-descript breed through surgical technique. The method used was simple and cheap because goat serum was collected and processed in the laboratory for this work. Goat serum so prepared replaced costly imported serum

source for *in vitro* maturation, *in vitro* fertilization and *in vitro* culture work. Following transfer, pregnancy was initially confirmed at day 28 and subsequently at day 56 by ultrasonography. On 17th August, 2006, this surrogate goat of non-descript breed delivered normally a female kid weighing 3.15 kg after 146 days of gestation. The weight of surrogate goat after parturition was 42 kg. The kid was healthy and of brown color indicating inheritance of Sirohi. The mother was of black and white colour. IVF technique will go a long way for improvement and conservation of goat breeds of India and has opened new vistas for application of biotechnological tools for improvement of domestic animal industry in the country in general and goats in particular. The development of IVF technology in goats holds promise of useful advances in certain animal biotechnology programmes, such as those involving gene transfer. The goat would permit more rapid progress in the production of transgenic animals than cattle and other livestock with longer gestation intervals. The technique has applications in faster propagation of the genetic merit of the elite females and also the use of non-descript animals as foster mothers for production of kids of superior genetic merit.

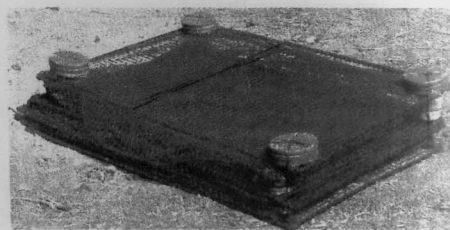
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Collapsible fish trap developed for riverine fishing

Different types of indigenous traps are operated in several parts of Kerala for fishes and crustaceans. Box trap made of bamboo splinters are very popular in north Kerala, especially



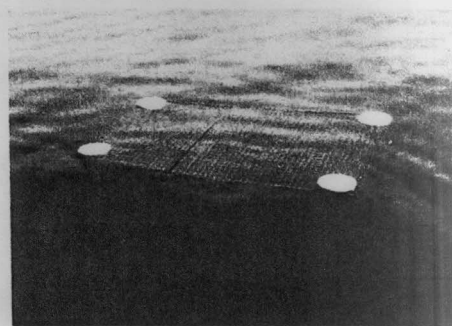
Collapsed traps

among the riparian communities. Though it is a low cost fishing gear it has inherent drawbacks like short life and difficulty in handling due to huge size. Moreover, only skilled fishermen can fabricate a good trap, which can be successfully operated. A canoe and two fishermen are required for its operation. To overcome these problems the CIFT has designed and fabricated a new collapsible fish trap for riverine fishing.

Design of the collapsible trap

The trap is made with two rectangular stainless steel frames of 1.1 x 0.75 size. The size of upper frame is 6 mm dia. SS rod and that of the lower frame is 10 mm dia. SS rod. The two frames are covered with polyethylene (HDPE) netting keeping 0.6m distance between the upper and lower frame. Netting made of 1.25 mm dia HDPE twine with 50 mm mesh size is used. Two entrance funnel made of HDPE netting of 1.5 mm dia twine with 20 mm mesh size are attached at both ends of the trap. Eight PVC disc floats of 150x 20mm size, two each at four corners are used to lift the upper portion of the trap to achieve a box shape. Four disc shaped cement

Trap under operation



sinkers weighing 1 kg each are attached to the four bottom corners to keep the trap at the bottom.

The design of the collapsible fish trap is simple and any fisherman can adopt the technology. Since it is made of PE webbing it is light in weight and once it is taken out of water it automatically collapses. A fisherman can transport and operate several units using a canoe unlike the traditional traps. Durability is more in the case of new trap since biodeterioration is nil.

Eight collapsible traps were fabricated and were operated in selected centers in Kasargod, Kannur, and Kozhikode districts. All the traps have been continuously in operation along with the traditional fish traps of similar size. Like the traditional traps no bait is used in the new traps. The preliminary results of the fishing trials with collapsible trap shows good catches of *Etroplus suratensis*, *Lu janus argentimaculatus* and *Scylla serrata*. The new fish trap is highly selective and is species specific in nature. It is also an ecofriendly fishing gear confirming the responsible fishing operation. Since the fabrication, operation and maintenance cost is very less poor fishermen can make the trap and without spending much time they can operate it to earn an additional income. Total cost of a collapsible fish trap is approximately Rs 1000.

Advantages of the new fish traps are:

- It automatically collapses when it is taken out of water
- More number of traps can be taken on the boat and operated
- 3 to 4 times more durable than the traditional traps
- Single fisherman can operate the trap, unlike the traditional one
- Since weight of the trap is less, handling, transportation and operation is easy

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Rotary maize cob sheller developed at CIPHET

Maize is the major food and an important source of income for small and marginal farming community in many parts of India. Farmers face the problem in removal of grain from the cobs. Majority of farmers are still following age-old methods to remove grains due to one or the other socio-economic reasons. Keeping this in view, a CIPHET Rotary Maize Cob Sheller was developed with the objective to reduce damage during shelling, drudgery, postharvest losses and manpower requirements. Developed machines are very handy and will be useful for rural people desiring to have their own portable units. The shelling efficiency is 95%.

Salient features of the developed machines:

- Simple and safer to use
- Suitable for all varieties of maize
- Negligible damage during shelling
No cleaning of grains required
- The cost of units are low and affordable

Rotary maize cob sheller



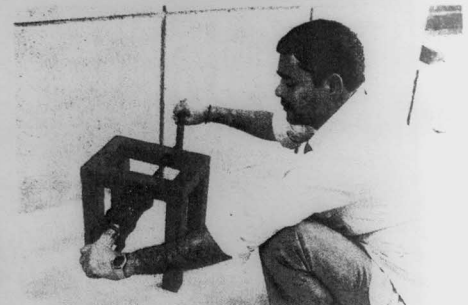
- Suitable for seed producing agencies
- Very useful for those areas where energy is constraint.

Rotary maize cob sheller

One person can operate this machine. The cob is inserted into the sheller by one hand and pushed slightly against the fins. With the other hand the sheller is rotated. As soon as three-fourth of the cob is shelled, the cob is taken out and its other end is inserted. The capacity of sheller is 60 - 65 kg/hr. This sheller is suitable for rural women for shelling maize as and when required for household consumption. Cost of the sheller is Rs 1500.

Low cost rotary maize cob sheller

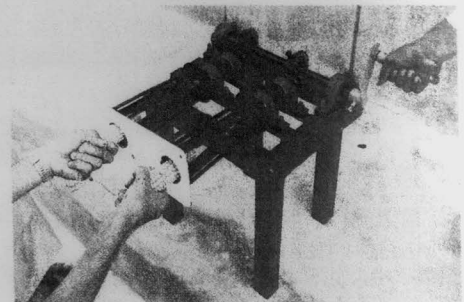
One person can operate this sheller with the same operating procedure as mentioned earlier. This sheller is fabricated without brackets and bearings. The cost of the sheller is Rs 700.



Low cost rotary maize cob sheller

Rotary maize cob sheller with two shelling units

Two persons are required to operate



Rotary maize cob sheller with two shelling units