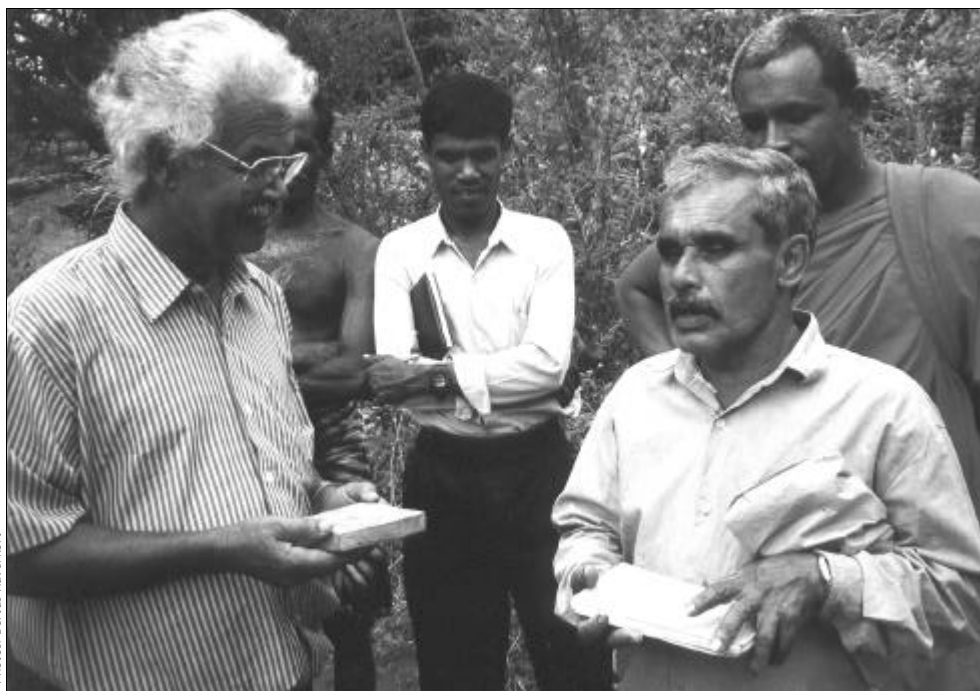


# Testing indigenous techniques to protect crops from wild animal damage

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In Sri Lanka, there used to be no competition between traditional shifting agriculture practices and wildlife habitats. Game was actually a by-product of farming and many traditional practices were designed to protect crops from the damage caused by wild animals. ECO collaborates with farmers and other agencies to evaluate the effectiveness of these traditional practices and to explore how they can be used in present day farming.



Photos: Bertus Haverkort

The author (left) meets with a spiritual leader and a Buddhist monk. The effect of yantras, or ancient symbolic drawings, to control pests in rice is tested in the farmer's fields



Before 1850, agriculture in Sri Lanka consisted of forest-based shifting cultivation in the uplands and small-scale paddy farming in the lowlands. Since then land use has changed considerably. In the wet zone forests, large tree-crop plantations have replaced shifting cultivation. In the dry zones extensive irrigation projects have been promoted for paddy farming. In the process poor farmers have been driven into more marginal lands and today these areas are often close to wild life reserves.

## Wildlife as by-product

The traditional shifting cultivation practices did not compete with wild life habitats. Wild animals were a major source of food and a by-product of traditional farming. Farmers would leave gaps in their fences to lure and trap game.

Today restrictive wild life regulations, which are extended beyond the boundaries of the parks, prevent farmers from shooting and domesticating wild life. As a result animals such as the wild boar have been able to multiply freely in agricultural areas.

In modern land use wild life habitats

are under threat and wild animals are seen as a danger to crops. At the same time modern agriculture is unable to come up with ways of protecting crops from wild animals. It is therefore useful to study and evaluate the relevance of indigenous techniques.

There are three categories of traditional practices to protect crops from wild animal damage. The first group is based on astrology, the second on the powers of the spirits and Gods, and the third involves the chanting of verses and the use of specific symbols. Often these different practices are combined.

## Astrological practices

In every village there is at least one astrologer who reads the ancient texts and gives people advice when they are trying to plan important events. Some astrologers are generalists, while others specialise in health, agriculture and helping travellers.

The simplest astrological method to prevent wild animals damage is to begin fencing early on Monday morning some 30 minutes before sunrise. A branch from a

particular tree is cut in one slash and divided into four short sticks. Three sticks are pegged down facing east. A fourth stick is tied across the others with a vine that gives off a milky fluid. Soon afterwards a small area is cleared and a few seeds are sown. This practice is still in use in many dry zone areas.

## Spirits and Gods

During an ECO workshop on indigenous practices Mrs Siriyawathie, a 58 year-old farmer, recounted her experiences. "After threshing I always used to put some paddy aside for the *pooja*, or offering, in the Dambulla temple. After offering milk rice to Lord Buddha and praising the Gods, I used to pray that my crops would be protected from rats and insects. But rats went on damaging my crops. Then I decided to make a separate offering to the god Vishnu. The following season, I made my first offering in the Dambulla temple as usual. Then I prepared milk rice and took some paddy, flowers, oil and incense to the *Devale*, another temple dedicated to the Gods. I performed the offerings and prayed that my crops would be protected.

I then handed over the paddy. This would be used during the special offering with a large gathering. That season no rats damaged my fields. Now, I make this offering every season and I believe it helps keep my crop safe."

In the Kandalama and Minneriya area farmers believe that unless a coconut is hung to please the Minneriya God, wild elephants will damage their crops. Therefore, each season almost every farmer performs an offering and hangs a coconut in the field before cultivation begins. They also participate in the communal rituals held at the temple.

Similar rituals are performed in other areas. In Manampitiya, for example, all farmers visit the temple and make offerings before they start cultivating their crop. Then each farmer receives a coconut, which is hung in the fields to keep wild animals away. After the harvest, farmers put aside some paddy and perform a ritual in the field for the same purpose. The harvest must not be consumed before this ritual has been performed.

### Pirith, mantra and yantra

*Pirith* is Buddha's teaching for laymen and involves chanting specific verses in a group. Each verse deals with some aspect of good living. Some of these prescriptions are used for crop protection. The verses are used to charm sand and water. These are then sprinkled thinly over the field. Sometimes symbols are painted on an ola leaf and hung in the corners of the field. A *pirith* is more effective if the one who performs it leads a pious life and refrains from robbery, sexual misbehaviour, eating animal protein or drinking alcohol.

The repetitive chanting of *mantras*, which are specific sounds, cause a vibration in the environment. This influences the spirits to bring about the desired effect. In the mantra Gods or religious leaders, like Lord Buddha or the Prophet Mohamed, can also be called upon and their great achievements are recalled.

A *yantra* can be described as a symbolic drawing liked by a particular spirit. Drawing a *yantra* involves following certain laws. If these laws are not carefully followed not only will the *yantra* have no effect, but evil things may happen. For the spirit to occupy the *yantra* it has to be enlivened with specific verses, or *mantras*.

### Experiences

Mr. E.M. Bandara is a traditional healer, who knows very old and powerful mantras. His knowledge comes from his forefathers. Each mantra is different and depends on which animal is being addressed. When elephants are threatening the crops, the mantra must be accompanied by placing a charmed coconut flower in the middle of the plot. If the animal concerned is a wild boar, a glowing fire stick is charmed and dipped in the paddy field.

To prevent a rat attack sand and pebbles are taken from the field and these are then charmed. The sand is then sprinkled over the field while pebbles are buried in each of the corners. Charmed pebbles are also buried in each corner of the field to ward off monkeys. Birds are kept away by burying charmed mustered seeds and sand in the centre of the field.

### Training centre

The ECO training centre is a biodynamic farm almost entirely surrounded by pine forests. Damage from wild boar, porcupines, rabbits and monkeys are inevitable. One evening in 1995 water charmed by a Buddhist priest at the Doluwa Kanda temple was sprinkled around the farm. A local individual with specific spiritual power was chosen to sprinkle the water, while chanting special verses. During that season no wild animal, insect pests or disease damage was observed on the farm. Wild boars only came into those areas of empty land that remained uncultivated.

Professor Perera of the Animal Husbandry Department at Peradeniya University describes his surprise: "We were conducting some on-farm experiments and were on the verge of giving up because of the repeated damage caused by wild elephants. Then we met a villager who told us about someone who could protect the fields using mantra. I did not believe it, but I met the man and told him of our difficulty. He agreed to go to our farm and attend to the problem. Staff of the experimental site provided the materials needed in the ceremony: just one coconut. He used some lime to paint figures on the coconut, then chanted mantras and hung the coconut in the direction in which the elephants used to enter the site. Since then the elephants have not come to the site and we have been able to continue our work."

### ECO activities

ECO believes that indigenous practices can be tested and refined to support the process of endogenous development. ECO therefore makes an effort to understand, test and improve those indigenous knowledge practices that have persisted in different locations. Together with farmers we test the techniques for efficacy. Then we promote the techniques that have been shown to be effective. With the help of the University of Peradeniya and using modern designs, ECO is now conducting a series of experiments to determine the effec-

tiveness of indigenous practices. Past experiences, however, have shown that it is difficult to present statistically accepted results. It appears that new methods have to be developed.

In this process reluctance to share specific indigenous knowledge with people from outside the community must be understood. Therefore, ECO works within a basic framework of indigenous education. We advocate the training of local individuals usually chosen from among the sons and daughters of the village, or from relatives and friends. This counteracts the suspicion of intellectual piracy.

In this process ECO has come across many people who are willing to share their knowledge and practices, not with outsiders but with others engaged in similar fields. Therefore ECO has established contacts between indigenous practitioners. It organises training activities and provides such assistance as transport and library facilities. This is yet another way of supporting traditional practices, in the process of exploring how they can be used in present day farming.

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Farmer showing a charmed scarecrow for protection from wild elephants

Photo: G.K. Upawansa