



National  
Foundation

Innovation

Consolation Award

Farm Implements: Bicycle weeder, tiller and harrow



**Shri Gopal Malhari Bhise**

### **Bicycle weeder, tiller and harrow**

The innovation of Gopal Malhari Bhise is a multi-purpose farm implement fashioned out of inexpensive bicycle components. The main part of the implement consists of the front portion of a bicycle, namely handlebar, front axle and the wheel. A steel fork is connected to the axle and the other end carries different kinds of attachments. Separate attachments for weeding and tilling or a harrow are attached to the working end, using bolts and nuts. This helps in changing the attachments as needed. Suitable slots are provided for attachment so that the distance between blades can be adjustable to suit specific requirements. Safety provisions are incorporated so that the blade did not injure the farmer at the time of reversing the device during weeding. The weeder costs approximately Rs 1200. With it, a person can weed 0.08 ha per hour. It is very easy to operate and is ideally suited to the needs of marginal farmers who cannot afford to maintain bullocks.



Gopal Malhari Bhise (64 years) is a marginal farmer. As a child, he was fond of making replicas of airplanes out of paper, leaves and waste fabrics. He often dreamt of darting from place to place despite not being blessed with wings like butterflies. After completing matriculation he loathed taking up a routine, desk-bound clerical job. Instead, he attempted to make a living out of his meager landholding in Ahmednagar district of Maharashtra. When there was no work at the farm, he worked as a manual labourer, doing odd jobs for others.

Bhise feels vindicated about his commitment toward productive physical work close to earth. More than 200 farmers who use the multi-purpose cycle weeder/hoe developed by him, vouch for his success. Bhise had to dispose off his land and migrate to Jalgaon district as he could not make ends meet. He settled down in Shendurni village. He purchased 0.8 hectare of fallow land and started cultivating it. It was a tough job because he owned no bullocks and the land was rainfed. Though the land was quite fertile, he and his wife Mainabai had to toil hard to make a living out of it. They even dug a well, all by themselves.

*At Post: Shendurni, Taluka: Jamner,  
District: Jalgaon - 424204 Maharashtra*

*Scout: Ramesh Mahajan, Maharashtra*



The tiller attachment enables the farmers to cultivate medium-hard soil up to a depth of two cm. The load in digging out the soil has been kept to the minimum by providing appropriate profiles and curvature to the implements through a process of trial and error. Bhise uses the device to carry out most of the farming operations on his own land. He no more needs bullocks for cultivating his land. The device is so simple that even his 12-year-old nephew can operate it safely without difficulty.



However, they had to hire bullocks to do the strenuous tasks of cultivation, like deep-ploughing and harrowing. They had to contend with the harsh reality that the bullock owner would often not spare the animals when these were actually needed the most, leading to crop failure or lower productivity.

It was his frustration at the plight of marginal farmers like him that led him to develop this device. One day he saw a grocer transporting four big sacks of flour on a bicycle. Although it was quite tedious, that saved him the cost of cartage. The sight gave Bhise an idea, "Why should I not modify the bicycle for the purpose of farm operations?"

After a lot of trial and error, he came out with an implement, fashioned out of the front axle, wheel and handlebar of a standard bicycle, that can be used by the marginal farmers to conduct operations normally carried out by bullocks or tractors.

People used to laugh at him but he never gave up. Other blows in life also took their own toll. His first wife died at the age of 36, and he married again. The responsibility increased. He had to feed four children by first wife and a daughter by second wife, Ranjana alias Mainabai. In all his endeavors, Mainabai and his close friend Subhash Jagtap stood by him solidly. The latter, owner of Sachin Welding Works, helped him with his



expert welding skills. Perseverance finally paid off and his portable implement, christened *Krishiraja*, was received very well in the local market. He has fabricated 213 devices so far. The whole set currently sells for approximately Rs 1200 a piece. '*Krishiraja*' makes a raja out of the marginal farmer. It gives the much needed independence to the small farmer who cannot obtain bullocks or a tractor in time," says Ramesh Mahajan, an extension worker in the Department of Adult and Continuing Education and Extension Services of North Maharashtra University, Jalgaon. He is the scout who introduced the innovator to Honey Bee Network and NIF. With the help of GIAN- West, his innovation has transformed into a motorised device. Help from his mechanic cum electrician friend Mr. Subhash Jagtap has proved very crucial in materialising his ideas into innovation.