

An indigenous cost effective innovation for bird scares by the *Gond* tribe in Adilabad district, Andhra Pradesh

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Received 11.02.11, revised 24.05.11

An indigenous cost effective innovation developed and used for bird scare by the *Gond* tribal community living in Adilabad district of Andhra Pradesh, is described. The objective of the study is to record innovative traditional practices related to agriculture prevailing among the tribal communities in the Adilabad district, Andhra Pradesh.

Keywords: *Gonds*, Bird scare, Tribal practices, Traditional agriculture

IPC Int. Cl.⁸: A01, A01D, A01M, A01N, A01K 31/00, A01K 37/00

The *Gonds* are one of the major ethnic groups of India distributed mainly in parts of Andhra Pradesh, Maharashtra, Chattisgarh and Madhya Pradesh¹. Adilabad district of Andhra Pradesh is surrounded by districts of Chandrapur, Nanded and Yeotmal of Maharashtra in the East, West and North, respectively and Karimnagar and Nizamabad of Andhra Pradesh in the South, *Gonds* form a sizeable population? Their main occupation is farming mainly through *kondapodu* (slash and burn practice of cultivation) in the hills and foot hills.

The important crops grown by this group in the district are sorghum, maize and paddy under cereals; cotton under fibres; soybean, greengram, blackgram, cowpea and field bean under pulses; sesame and castor under oil seeds, and Amaranths, bitter gourd, bottle gourd, brinjal, chillies, dolichos bean, roselle, okra and onion under vegetables². Sorghum, maize and paddy are the major staples finding place in the traditional cropping system, cultivated as a sole or a mixed crop both during the *kharif* (rainy) and *rabi* (post-rainy) seasons, in the district.

One of the important constraints for cultivation of Agricultural crops is the menace of birds which cause substantial damage to various crops at the time of harvest resulting in huge losses. The main bird species that feed upon the Agricultural crops are

parrots, sparrows, mynahs, pigeons and peacocks. The important crops that fall prey to bird damage include sorghum, maize, sunflower, Italian millet, finger millet, barnyard millet and little millet, etc. Sorghum is the most susceptible crop, both during the *kharif* and *rabi* seasons. As, the varieties under cultivation are not diversified and few in numbers, the diversity in production system is low. The varieties under cultivation are genetically homogeneous and predominantly naked types, the seeds of which are exposed and not covered by the glumes as against the traditional landraces which were semi-covered or covered and bird resistant.

Methodology

A total of eight germplasm surveys (4 each during rainy-*Kharif* and post-rainy-*Rabi* seasons respectively) were conducted in the Adilabad district of Andhra Pradesh state during October, 2010 and December, 2011. Farmers' fields in six villages of Kasipeta Mandal (Chintagudam, Chitramanigudam, Doddaguda, Malkapalle, Rangangudam, and Venkatapur) and nine villages of Khanapur mandal (Champalle, Erachintal, Itkyal, Kolamguda, Nagapuram, Pembli, Sattenpalle, Tarlapadu and Thatiguda) were surveyed. The survey team noticed a few interesting bird scare structures in the farmers' fields and approached them for eliciting information. Interviews with the tribal farmers were scheduled and information obtained on various

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materials used in making the bird scare structures. Information on associated plant genetic resources was recorded using the 'proforma for survey' developed by the NBPGR (Annexure 1). Global Positioning System (GPS, Garmin 12) was used to record the geographical coordinates of the farm locations in the surveyed region. Prior Informed Consent was obtained from the farmers (knowledge providers) belonging to *Gond Nayakpod* and *Kolam* tribal communities and for the knowledge dissemination (Table 1).

Results and discussion

In view of changes in the cropping pattern, which include patronage of new crops (soybean, Bt-cotton) and erosion of time tested well adapted native crops (sorghum, pearl millet, sesame and small millets), the bird species are devoid of traditional crops on which they were feeding for generations. In view of absence of these crops, it has been observed that, they are forced to feed even upon paddy. To check the menace of birds, the *gonds* have come up with a unique structure made of locally available material (Figs. 1 & 2), time tested over generations, which we noticed during surveys undertaken in October, 2010 and January, 2011. The prototype mainly consists of a *veduru gulla* (circular woven structure) made of bamboo through which 4-5 *sutli* (made of *mestha*) rope pieces of about 60 cm length are tied at equal distance. All the ends are drawn through and tied at the top in a knot at an angle of about 45°. Four to five slender sticks of about 15.0 cm length and 2.0 – 2.5 cm

diameter made of bamboo are tied to the *gulla* downward at about a length of 15.0 cm with the help of *sutli* rope. A well dried shell of *burrakaya* (bottle gourd) which has a considerable length of goose neck is drawn in to the *gulla* and tied to the top end knot in such a way that, when there is a breeze the bamboo sticks hit hard on the bottle gourd shell with a considerable force making a huge sound due to the hollowness of the bottle gourd shell. It was observed that, the bottle gourd shell is placed inside the *gulla* in two ways, one with the neck upwards and the other with the neck downwards. However, the neck down prototype was found to be more effective in having larger shell surface area for the sticks to hit making a loud resounding sound. The bird scare design looks similar to that of a Chinese wind chime which makes a mellifluous sound. It was also observed that some farmers tie a dark red cloth or a circular disc made of bamboo as well to the bottle gourd at the end for balancing. This enables the structure – frequently oscillate to generate the sound and also to frighten the birds. The above bird scare structure is tied to a long bamboo pole which is slightly bent in North-South direction. The intermittent sounds frighten the birds and ward-off their movement thus saving the crops. The design is cost effective and innovatively made with material locally available with them and can be used for almost a season. After harvest of the crop, the structure is removed and erected again after the next sowing/transplantation.

Annexure 1

Proforma developed by NBPGR for recording Indigenous Knowledge
Indigenous Knowledge (IK) Questionnaire

I. Ethnic information

| | |
|------------------|----------|
| Reference number | Date |
| Name of Person | |
| Male/Female | Age |
| Ethnic group | |
| Village | Mandal |
| District | State |
| Altitude | Latitude |
| Longitude | |

II. Indigenous Knowledge

- 1 What is the practice/product
(It should explain the method or approach)
- 2 Is it related to
 - a) Traditional agriculture
 - b) Traditional phytochemistry
 - c) Medicinal utility
 - d) Material culture
 - e) Wild plant resources

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- f) Subsistence
 - g) Artistic product
 - h) Agronomic practice
 - i) IPM
 - j) INM
 - 3 What is the Plant/part used
 - a) Botanical name
 - b) Vernacular name
 - c) Tribal dialect
 - 4 When did the practice/product start (dd/mm/year/the season if it is a seasonable practice)
 - 5 Is it still practiced or has it been stopped (When did it finish? date/year)
 - 6 Summary of the practice/ nature of product
 - 7 Is the methodology/product inherited from fore-fathers
 - 8 Who are the main initiators, stakeholders and users
 - 9 How and why are they involved in the practice
 - 10 Who are the main beneficiaries
 - 11 Sustainability of the technology/product (Which aspects of sustainability does the practice involve? How and/or why?)
 - a) Economic aspects
 - b) Environmental aspects
 - c) Social/Cultural aspects
 - d) Other aspects
 - 12 Indigenous knowledge aspects of the practice
 - 13 Strengths & weaknesses of the practice
 - a) Strengths of the IK
 - b) Weaknesses of the IK
 - 14 Has the IK practice been replicated elsewhere. If so where and by whom?
 - 15 Potential for adaptation of the IK (Applying all or parts of practices to other Villages/Mandals/States)
 - 16 Are there any cases in your community where IK is misused/abused
 - 17 Photograph taken
 - 18 Herbarium specimen taken
 - 19 Any other information
 - 17 Remarks
- III. Indigenous Knowledge recorded by
- 1 Name of the Scientist recording the data
 - 2 Address
 - 3 Whether information added to Database
-

Table 1—List of knowledge providers from Adilabad district, Andhra Pradesh, India

| Farmer name | Age | Village | Mandal | Tribe | Latitude (North) | Longitude (East) |
|--------------|-----|-----------------|----------|-----------------|------------------|------------------|
| M.Bojji Rao | 75 | Malkapalli | Kasipeta | <i>Gond</i> | 19° 04.64' | 79° 22.88' |
| A.Barik Rao | 71 | Venkatapur | Kasipeta | <i>Gond</i> | 19° 05.65' | 79° 20.89' |
| A.Bheem | 48 | Chitramanigudam | Kasipeta | <i>Gond</i> | 19° 02.54' | 79° 19.44' |
| M.Sangu | 45 | Doddaguda | Kasipeta | <i>Gond</i> | 19° 04.26' | 79° 18.36' |
| P.Laxmayya | 64 | Nagapuram | Khanapur | <i>Nayakpod</i> | 19° 07.19' | 78° 37.83' |
| Sidam.Laxman | 58 | Erichintal | Khanapur | <i>Kolam</i> | 19° 02.00' | 78° 41.00' |
| S.Samesh | 52 | Itkyl | Khanapur | <i>Nayakpod</i> | 19° 13.89' | 78° 37.18' |



Fig.1—Bird scare under use in a maize field

It was observed that the present prototype is working well in crops such as sorghum, maize and paddy to scare away different bird species. These traditional bird scare practices are still followed by the elderly tribal farmers who prefer self-reliance and come out with ingenious cost effective solutions from their own resources while tackling their farming difficulties and do not like to depend on others/ market forces. They have come up with a model which is cost effective and does not need any purchased input and can be very easily prepared from local resources. This practice was observed in two Mandals (district sub-units), *viz.*, Kasipeta and Khanapur indicating the awareness and popularity



Fig.2—Bird scare prototype with red cloth tied to base of the structure of this traditional knowledge among the *gonds*, the group which is more progressive of all the ethnic communities.

Since ages, farmers have developed various devices to scare and repel birds feeding on cultivated crops not only in India, but also in other parts of the world. Ruelle and Bruggers³ reported that wind blown noise making devices ward-off bird movement both during the pre- and post-harvest seasons. Four indigenous practices such as scare crow, human bird watch, use of catapult and traditional medicine were followed by the rice farmers in Egitu state of Nigeria^{4,5}. Some of the forms/ ways and means practiced for bird scare in South India^{6,7,8} and other parts of the World^{9,2} have been duly documented.

Conclusion

The fact that this practice is in vogue only in two of the 53 Mandals in the district conveys the disinterest and eroding practice of oral communication of traditional practices across generations among the tribal groups. Modernization has changed the lifestyle of younger generation who are sceptical towards such traditional knowledge leading to its overall erosion. The prospects of practice of this kind of time tested local innovations in future seem very bleak and hence the documentation of this prototype for posterity, dissemination of ITK and record of history of agriculture evolved and practiced by the *gonds* ethnic group is necessary. Awareness on cost-effective crop protection measures among the farming community should be created and popularized.

Acknowledgement

The authors are thankful to Director and Head, Division of Plant Quarantine, NBPGR, New Delhi for all the encouragement, support and providing necessary facilities. Funding for undertaking survey work from the NAIP is also gratefully acknowledged. The authors are highly thankful to the knowledge providers, viz. M.Bojji Rao (75yrs)-Malkapalli (V); A.Barik Rao (71 yrs)-Venkatapur (v); A.Bheem (48 yrs)-Chitramanigudam (V); M.Sangu (45yrs)-Doddaguda (V); P.Laxmayya (64 yrs) - Nagapuram (V); Sidam.Laxman (58 yrs)- Erichintal (V) and

S.Samesh (52 yrs)- Itkyal (V) for extending their support and help during the surveys.

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