

## RESEARCH NOTE

## Productive Use of Draught Animals in Rainfed Region: Lessons from recent Study in Andhra Pradesh

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### ABSTRACT

*The study explained that small farmers (42.6%) and medium farmers (26.66%) from the major groups. About 6.6% are landless and 20% are marginal farmer the remaining are large farmers in Vadla Ramapuram village area. More than half (55.55%) of the land is Irrigated land and 44.4% land is Rainfed land in Vadla Ramapur village and same as Amalapuram village have more Irrigated land than Rain fed. The major crops are mainly paddy, maize, cotton and pulses in both villages seed showing both of the villages were used only bullocks with their traditional tools. They mainly used which called in their local language 'Darigam' and 'Mumta' which are made by bamboo, plastic or iron material. There are no farmers who are using tractors for seed showing in these two villages. Prices of tractors and allied implements are rapidly increasing. Small farmers cannot afford to purchase and use tractors because of high initial cost, operational cost as well high repair and maintenance cost. Farmers also want from the government if subsidies bullocks provide to them as tractors it will be more benefit for them in all aspects.*

**Key words:** Rainfed land; Bullocks; Traditional tools; Tractors;

Over 850 million people around the world are undernourished with, nearly three quarters of them living in rural farming communities in South Asia and sub-Saharan Africa (Smith *et al.*, 2000). The importance of draught animal welfare can be viewed from a number of different perspectives: economic, ecological, social, cultural, and emotional or affective. Draught animals have contributed a great deal too human civilisation. Even in this century, when petroleum-based mechanical and electrical equipment has replaced animals in advanced countries, draught animals still play an important role in certain developing countries, and will continue to do so for many years (Ramaswamy, 1994). Future increase in global population is projected to occur mostly in developing countries, where soil, water, and farm power resources are already under great stress (Fischer & Heilig, 1997 and Cohen, 2003). Food security for 850 million populations is achievable partly through improvements in farm power availability to the resource poor farmers (Rosegrant & Cline, 2003).

From pre-historic times when man changed status from hunter-gatherer to settled agriculturist, he harnessed the muscle power of large domestic animals to augment his own physical efforts in food production and leisure. Nowadays in any agricultural crop production system, humans, draught animals and engines or motors provide the motive power in various proportions for crop production, harvesting, transport and processing (Rijk, 1989; FAO, 2003; Pearson, 2005).

Draught animals play a dominant role in our rural economy. Apart from the manual labour, the traditional cultivation in India was based on the use of animal power for 97.6% of farmers (land owners) accounting for 77.2 per cent of land holdings. India had the largest population of draught animals in the world (Approx. 88Million). This localized resource is exhaustible and available resource with farmers, yet to be optimized properly (<http://unnat.iitd.ac.in>).

The main objective guided the present study was to determine the extent of bullocks uses in farmers field.

## METHODOLOGY

Two villages namely VadlaRamapuram and Amalapuram from Kurnool district were selected as the locale for this piece of the study because of highest portion of Andhra Pradesh farmers using Bullocks in this district. There are some farmers selected for the study. The schedule contained both open and closed form questions. Appropriate scales and techniques of measurement were applied to ensure correct responses of the variable concerned. Data were collected by the team through face to face interview.

## RESULTS AND DISCUSSION

*Land holding distribution and major crops:* Data contained in the Table 1 show that small farmers (42.6%) and medium farmers (26.66%) from the major groups. About 6.6 per cent are landless and 20 per cent are marginal farmer the remaining are large farmers in VadlaRamapuram village area. On the other hand, that small farmers (45.45%) and medium farmers (24.54%) from the major groups. About 5.45% are landless and 20.90 % are marginal farmer the remaining are large farmers in Amalapuram village area.

Findings displayed in Table 2 illustrate the cultivated land area in the villages. More than half (55.55%) of the land is Irrigated land and 44.4 % land is Rainfed land in VadlaRamapur village and same as Amalapuram village have more irrigated land than rain fed. The major crops are mainly paddy, maize, cotton and pulses in both villages.

*Owner of bullocks and tractors:* Tractors and bullocks are playing very crucial role in farmer's field. RRA team found from the villages that among the all animals bullocks are used most which is: NallaMallaKamma cattle breed.

*Bullocks and tractors implementation in field :* With the modernization of agriculture, the use of mechanical power in agriculture has increased but draught animal power continues to be used on Indian farms due to small holdings and hill agriculture. 90 per cent of land holdings are distributed in marginal (below 1 ha) to semi-medium (2 to 4 ha) farm holdings. It covers about 50 percent of total cultivable land Small and marginal farmers comprise over 80% of cultivators in India. They cannot afford tractors. Average farm size, too, is becoming smaller due to fragmentation ([www.veternaryworld.org](http://www.veternaryworld.org))

Findings presented in Table 3 that in land preparation (ploughing) bullocks and tractors were used by the farmers where Bullocks can do the ploughing 8 hours /0.7 acres per one day and tractors can do it 3 hours /3.7 acres per day. But maximum small and marginal farmer used only bullocks for their land preparation.

On the other hand for seed showing both of the villages were used only Bullocks with their traditional tools. They mainly used which called in their local language 'Darigam' and 'Mumta' which are made by bamboo, plastic or iron material. There are no farmers who are using tractors for seed showing in these two villages

*Bullock's diseases:* There are some diseases which

**Table 1. Landholding Distribution**

Village	Landless	Marginal(<1.0)	Small(1.0-2.0)	Medium(2-4)	Large(>5.0)	Total
VadlaRamapuram	100(6.6%)	300(20%)	640(42.6%)	400(26.66%)	60(4%)	1500
Amalapuram	60(5.45%)	230(20.90%)	500(45.45%)	270(24.54%)	40(3.63%)	1100

**Table 2. Cultivated Land area details**

Village	Rainfed land (ha)	Irrigated land (ha)	Cultivated land (ha)	Major Crops
Vadla Ramapuram	400(44.4%)	500(55.55%)	900	Paddy, Maize, Cotton, Pulses
Amalapuram	300(42.85%)	400(57.14%)	700	Paddy, Maize, Cotton, Pulses

**Table 3..Bullocks and Tractors Implementation in Field**

Activity	Vadla Ramapuram Village		Amalapuram Village	
	Bullocks (hour/day)	Tractors (hour/day)	Bullocks (hour/day)	Tractors (hour/day)
Land Preparation	8 hours/0.7 acres	3 hour/3.7acre	8 hours/0.7 acres	3 hour/3.7acre
Seed Showing	8 hours/0.7 acres	0	8 hours/0.7 acres	0

found sometime in a year like swelling in legs, fever, and foot and mouth diseases. For the prevention farmers are using Trivax vaccination in a year and also using herbal products from the villages. The total expenditure for the medical purpose is approximately Rs.1000/year.

*Fodder and feed:* The main diet for the buffalo is roughage such as grass, legumes and straw. The roughage can be fed either fresh as pasture or in a cut-and-carry-system or conserved as hay or silage.

**Table 4. Food expenses for bullocks during working days**

Food items	Quantity /annum	Expenses/year
Paddy straw	40kg/annum	Approx Rs 100
Black gram	Approx. 1 kg/day	Rs 6000
Maize powder	Approx. 1 kg/day	Rs 1200

From the Table 4 reflected that the farmers are mainly using paddy straw from their own field for food purpose. One bullock is consuming 40kg /annum. Some farmers who are not having that much land they are purchase paddy straw from the market or other farmers.

One tractor can carries paddy straw 3000 kg which cost is Rs.6000 to 8000. Apart from paddy straw, black gram and maize powder is given to bullocks. Cost of black gram powder is Rs 100/kg and maize powder is Rs 18-20/kg. Most of the farmers are giving this powder in working days of animals. One animal consumes around 1.5 kg of maize and black gram powder. The expenses in a year are Rs.6000 for black gram and Rs.1200 for maize powder.

*Bullock's economy:* In the survey an attempt was made to understand the commercial activity of the farmers in relation to the livestock rearing. When enquired about the regularity of breeding of livestock, especially the draught animals. It was mentioned that breeding was carried out by the households, but not on a regular basis.

Farmers are selling the bullocks at almost 1.5-2 years of age, at this age the bullocks are trained for farming up to a certain level. Many breeders sell bullocks at around 1 year of age, by this time the bullocks are not trained at all. One bullock pair after 2 years of age costs approximately Rs 60 to 80 thousand. At 3.5 years of age bullocks are most suitable for farming and can work till 20 years of age.

## CONCLUSION

Based on the major findings were farmers prefer to use bullocks in small plots as it is difficult to plough in small plots by tractors. Small farmer to large farmers want to use tractors and bullocks both in their field. Bullocks are more suitable for intercropping. Bullocks are exclusively used for intercultural operations like weeding which cannot be done by tractors. Prices of Tractors and allied implements are rapidly increasing. Small farmers cannot afford to purchase and use tractors because of high initial cost, operational cost as well high repair and maintenance cost. Farmers also want from the government if subsidies bullocks provide to them as tractors it will be more benefit for them in all aspects.

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