

**Information of ICAR-AICRP on Increased Utilization of Animal Energy with
Enhanced System Efficiency (UAE) operating at College of Agricultural Engineering,
University of Agricultural Sciences, Raichur (Karnataka)**

Name of the AICRP Scheme : ICAR-AICRP on Increased Utilization of Animal Energy with
Enhanced System Efficiency (UAE)

Year of Start : 01-07-1987

Headquarters of the Project : University of Agricultural Sciences, Raichur, Karnataka

Location : College of Agricultural Engineering, Raichur - 584 104

Mandate of the Project :

The mandate of the project is to improve the utilization efficiency of animal systems to harness animal power through efficient matching equipment and gadgets for on-farm and off-farm operation, providing better growth environment to draught animals through improved housing structure, sanitation, health control measures, value added feed and efficient utilization of animal by-products focussing on small scale farmers and improvement on mechanization level. The important activities include the following aspects.

- ❖ To develop and popularize animal operated matching equipment for conservation, organic and integrated farming to small and marginal farmers for improving the level of mechanization.
- ❖ To develop and standardize improved carting/transport systems with improved harnessing for different types of animals which include draught animals and donkeys.
- ❖ To standardize energy efficient , nutritionally safe animal feed using locally available materials to enhance energy output and reduce methane emission.
- ❖ To develop improved animal housing structures for conducive environment for working and non-working animals and technology for utilization of animal by-products.
- ❖ Popularization and pilot scale introduction of improved animal based equipment and technology on small farming systems.

The major types of draught animal population available in India is given below.

Animal population in India (2019-20)

Sl.No	Draught animal	Population (Millions)
1	Bullock	44.48
2	Buffalo	4.09
3	Camel	0.29
4	Mule	0.15
5	Horse and Pony	0.25
6	Donkey	0.21
7	Mithun	0.17
8	Yak	0.05
	Total	49.69

Staff position :

Sl. No .	Name and Designation	No. of Posts Sanctioned	Position on recruitment	Remarks
Scientific Staff				
1	Dr. M. Veerangouda Research Engineer and PI	1	Filled	Reported for duty on 01-01-2008
2	Dr.Sreedhar, J.N Assistant Animal Scientist,	1	Filled	Reported for duty on 01-10-2019
3	Dr. K.V. Prakash, Asst. Agril. Engineer	1	Filled	Reported for duty on 20-01-2006
Supporting Staff				
4	Mr. Murahari Rao, Research Asst. (Engg).	1	Filled	Reported for duty on 01-12-2012
5	Mr. Ravichandra, V. Typist and Computer operator	1	Filled	Reported for duty on 04-12-2017
6	Mr. K.A.A. Siddiqui Field Asst.	1	Filled	Reported for duty on 06-01-2010
7	Mr. Yankat Reddy Technician	1	Filled	Reported for duty on 06-04-2010
8	Mr. Anil Technician	1	Filled	Reported for duty on 06-04-2010

Visibility of the centre :

The Raichur centre documented the success stories related to the animal energy for transfer of technology. The success stories are as follows

1. Low cost animal housing structure – A step towards animal comfort
2. Improved hoof shoes for bullocks
3. Utilization of light steel cart for transportation
4. Donkey drawn improved steel cart
5. Maintenance and management of practices for bullocks
6. Technologies developed / popularized for efficient utilization of energy sources in farms
7. Efficient utilization of bullock power
8. Utilization of draft animal power through bull gear for operating agro-processing machines

Achievement of UAE scheme:

Following Technologies were developed/modified/demonstrated at Farmers' fields/Users' sites

- Double bullock improved steel cart
- Single bullock improved steel cart
- Donkey drawn improved steel cart
- Bullock cart mounted engine operated high clearance sprayer
- Bullock cart mounted solar powered high clearance sprayer
- Bullock cart mounted air mist canopy sprayer
- Improved animal housing structure
- Formulation of animal feed ingredients
- Rotary power complex for operating small scale agro processing machines

MoU signed with manufacturers :

Sl. No.	Organization	Collaboration with manufacturer
1	M/s Vishwakarma industries, Vijayapura	Manufacturing of bullock drawn improved implements
2	M/s Sudha agro agencies, Manvi	Bullock drawn engine operated high clearance sprayer
3	M/s Basavaraj, workshop , 7 mile camp, Raichur	Manufacturing of bullock drawn improved steel cart

Patent filed : Two technologies were filed for patent which include the following

- 1) Bullock cart mounted engine operated high clearance sprayer
- 2) Bullock cart mounted solar powered high clearance sprayer

Patent granted : Work is in progress.

Future plan

- ❖ To popularize the bullock drawn improved implements and technology for millet crops and field crops to the small and marginal farmers in Karnataka.
- ❖ The feed additives like herbal mixtures, enzymes, probiotics and TMR nutritive feed blocks can be fed to improve the performance of animals in terms of draftability, milk yield and its composition.
- ❖ Animal feed pellets can be prepared to avoid feed losses and to improve palatability and digestibility in live stock.



Bullock drawn high clearance sprayer



Bullock cart mounted electricity generation unit



Solar powered bullock cart mounted sprayer



Spraying on redgram crop using solar powered bullock cart mounted sprayer



Balanced nutritional animal feeding pellets



Bullock cart mounted engine operated high clearance sprayer

Contact Details:



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