

Entrepreneurs- "A success story of diploma engineering students"



Badakh D.B. Sonawane S.J. Kharde P. M.

A group of three students from Mechanical Engineering Department of Padmashri Dr.Vitthalrao Vikhe Patil Institute of Technology & Engineering, (Polytechnic) Pravaranagar (0030) of the batch 2015-16 had done their final year project for helping the farmers for milking the cows and buffaloes by developing simple, cost effective and manually operated milking machine. The project won the first prize Rs.75000 and a trophy at the state level project exhibition at Government Polytechnic, Dhule organized by MSBTE Mumbai. Back at home this achievement of students was given wide publicity through local newspapers. This created curiosity amongst the farmers and they started enquiring for the innovative machine developed by the students. By the time students finished their final year examination, there were around 150 enquiries

for purchase of the machine. This promoted the group of the students to think seriously about manufacturing of the machine commercially. As an outcome of this, presently these students have started production of above simple manually operated milking machine on their own and immersing as a successful entrepreneur.

➤ **Problem addressed:**

a. Issues faced by farmers-

Safe and speedy milking of cows/buffaloes is a requirement across rural India, due to scarcity of skilled labor for milking. On the other hand it is the fact that milking by hand is not considered healthy or hygienic anymore. Power operated milking machines are available in the market which are very expensive, suitable and affordable only for large cattle farms. At present no machine useful for a farmers holding 3 to 5 cows/buffaloes, which is simple, cost effective and manually operated. These three students being from rural area took up this problem as a topic for their final year project work.

b. Hardships faced by students-

Funding was the main problem faced by the students while making the model. So students overcame this by adapting the parts from scrap (vacuum cylinder, teat adapters, frame fabrication etc.), also used fiber can instead of using costly food grade steel material. Further modifications and changes had done step by step from the amount won in the prizes.

At the time of manufacturing commercially there is a lack of fabrication knowledge and facilities required. So students got help from the local fabricators to fabricate supporting frame, by paying minor charges. The other parts purchased from the amount taken from the clients as an advanced against bookings.

➤ **Product:**

Students from **Padmashri Dr.Vitthalrao Vikhe Patil Institute of Tech. & Engg. (Polytechnic), Loni** has made a "Simple Manually Operated Milking Machine" that helps small farmers to milk animal hygienically and reduce the drudgery in the process. It is a very simple machine and can be easily operated by women as well.

The production of simple milking machine has been started commercially by the students. The components are being purchased from the market in mass quantity and supporting frame is fabricated at their own workshop.

➤ **Technical Specifications:**

The machine is available in following three variants. All these models are made from Food Grade Stainless Steel material, Cluster assembly, teat adapters, silicon rubber teat liners, transparent pipe for milk and vacuum. In these entire models, the vacuum level required for milking is 350 mm of Hg. These are available in 10 liters and 20 liters capacity. The model wise technical details are also as below.

Model: (a) Simple Hand Pump Operated Milking Machine-



The weight of the machine is 7.5 kg, it does not require any external power source and it can milk one animal at a time. It is a basic milking machine, mounted on steel frame. It is having one reciprocating vacuum pump linked to a handle for manual back and forth operation.

Model: (b) Simple Foot Pedal Operated Milking Machine-



The weight of the machine is 8 kg. It is having one reciprocating vacuum pump linked to a foot

pedal for manual back and forth operation. The other specifications are same as model no. 1.

Model: (c) Multi Cylinder See-Saw Operated Milking Machine-

The weight of the machine is 12 kg, and it can milk two animals at a time. It consists of two Control block with vacuum gauge, two cans 20 liters each. The other specifications are same as model no. 2.

➤ **Key Competitive Advantages:**

The average time of milking is 4-6 minutes per cow.

Easy to operate , Saves time and effort in milking (1.5 liters to 2 liters per minute)

Hygienic and complete milking.

Machine is easily adaptable and gives soothing feeling to the cow Machine runs smoothly for 8 - 9 years.

Energy-conserving as electricity is not required.

Approximate Price and turnover:

Approximate prize for the milking machine according to different models is as follows-

Model (a) -Rs.9500

Model (b)-Rs.10000

Model (c)-Rs.16000

Hand operated milking machine model is getting very good response from the small farmers and more than 30 units have been sold out. Also 108 bookings got registered. So expected turnover for the coming year is around Rs.14.00 lakhs. Manufacturing of multicylinder model is in progress. It is being manufactured on the demand from farmers having more than 6 cows/buffaloes. The total manufacturing is at domestic level only so no external manpower is needed currently.

➤ **Achievements:**

Project has been following different awards-

Secured **First Prize Rs.75000/- and a Trophy** at State Level Project competition by MSBTE Mumbai “**Promoting Innovation & Talent through Creativity**” also Selected for

proceeding to Patent by MSBTE Mumbai on 12.03.2016 at Government Polytechnic, Dhule.

Secured **First Prize Rs.5000/- and a Trophy** in “**Vishwotech-2016**” State Level Project

competition for Diploma Engg. Students on 03.03.2016 at Vishwabharati College of Engineering, Jamkhed Road, Ahmednagar.

Secured **First Prize Rs.5000/- and Trophy** in “**Precision-2016**” National Level Multiple event competition on 16.03.2016 at Pravara Rural Engineering College, Loni.

Secured **First Prize Rs.5000/- and Trophy** in State Level Project Competition on 19.03.2016 at SND College of Engineering, Yeola.

➤ **Acknowledgement:**

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-Prof.M.B.Parjane (Principal)

-Prof.R.K.Belkar (H.O.D.)

-Prof.R.H.Naravade (Project Guide)