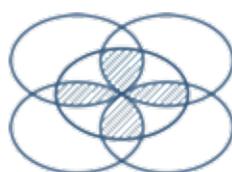


Reducing Women's Work Load by Electric Milk Churners

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Practical Note Spate Irrigation



Spate Irrigation
Network

Introduction

Women in poor rural areas play the key role in most of daily activities whether inside house or outside in the field: on economic, social, cultural to political fronts. Quite commonly, the work load of rural women touches 16 hours a day (The World Bank, 2008). However, in spite of the hard work and long hours their daily output is generally lower than men's productive output. One important reason for the low output is women's lesser access to improved tools and equipment especially for food production.

This Practical Note describes that providing rural women in spate irrigated areas involved in dairy production with access to cheap, readily available churning devices to produce butter and butter milk would significantly lift their productivity. It would release from tedious and time-consuming activities, in turn improving the health and economic outcomes of their communities. Improved electrical milk churners however are not available in for instance spate areas in Yemen, Sudan or Ethiopia, although they are common in India and Pakistan. This applies to other labour saving technologies for men and women as well, such as small oil and grain mills, fodder choppers and washing machines. These technologies should be promoted and disseminated from one country to another.

Churning

Livestock play an important role in the household economy and contribute high value nutrition. Women are heavily engaged in this sector. Feeding, milking and general care of animals is responsibility of both men and women. However, women share in these activities is much higher. Traditionally, collecting and processing milk, making yogurt, cheese and other bi-products are the sole responsibility of women. In many rural areas of Africa and Asia, dairy and milk products are the sole source of high-quality protein at household level. The reliance on traditional equipment, tools and methods means dairy production takes long hours.

In many African and Asian countries butter is extracted from yogurt and not from milk directly, as is the practiced in Europe and other developed countries. Rather, the milk is heated first and converted into yogurt by adding a small quantity of yogurt, some medicinal plant extracts and or some fruit. The process can take several hours to half a day/night. The yogurt is then put into a

churning utensil to settle. The churning utensil used is different in different regions. In Afghanistan, Central Asia and Himalayan regions the "utensil" is made of animal skin, mainly goat, sheep or yak. This skin utensil is stirred by a stick held in the centre, usually by a woman, for long time so that fat particles solidify at the end. The process takes one to four hours depend upon the size of jar and quantity of yogurt. Women then separate and collect by hand the lumps of fat, floating on the surface of yogurt liquid. Butter is separated at this stage and placed in a separate container to be used for cooking and eating. This butter can be kept for longer period, according to weather conditions, and then converted into ghee (butter oil). This is a precious commodity for livestock holding individuals/communities and is sold in market easily. The remaining butter milk (called lassi in the Subcontinent and doogh in Iran, Afghanistan and central Asia) now freed from the fat is used as beverage. This substance is a most important part of poor people's meals. Life without lassi/doogh is extremely difficult and its possession is sign of prosperity and blessing. Among nomad groups and villagers traditionally selling lassi/doogh is taboo and thus not marketed but given free to neighbors, poor and needy people. During extra ordinary excess of lassi/doogh especially in calving/lambing season is fed to calves, lambs and kids.

In the Subcontinent the traditional churning utensil used are often made of clay, stainless steel and aluminum. In rural areas majority people use clay jars that are manufactured specifically for this purpose by local potters. The clay jar is designed in a way that its bottom part is wide and upper part is narrow. This helps in churning the ensure moving the yogurt in liquid form does not spill. A more traditional churner device (Madhani) consists of wooden shaft a maximum one meter length and manufactured by local carpenters. Blades are attached at the bottom end and upper side



Figure 1 Milk Churning (Yogurt Churning) in Animal Skin (Goat/Sheep/Yak) in Central Asia



Figure 2 Traditional Wooden Milk Churner, Pakistan

has provision to attach belts to rotate the shaft forward and backward by hand. The curd jar is placed on wooden workstation and having vertical shaft parallel to churner shaft and both are connected by another belt for stability. Yogurt is churned by adding appropriate quantity of water. This locally made simple churning device is highly time consuming. It takes at least one hour to churn one liter or kilo of yogurt through this method.

Improved and new models of churners have been made applying the same principles of traditional churning. These are extremely time and cost effective. For longer period traditional hand driven wooden churners were in used in South Asia, but this has now changed. Local industry in the Subcontinent has long experience in manufacturing electric ceiling fans. In the 1970's local artisans engaged in electric fan industry started to develop milk churners on the same principle, i.e. using a shaft rotated by electric motor but in slower speed than a fan. Places like Gujranwal, Gujrat, Sialkot and Amritsar in Punjab region have long history of light industry and were capable enough to test and manufacture these churners. Initially women were hesitant to



Indian electric churner having vertical blades. This model is popular in some parts of India. Vertical blades ensure maximum mixing and rotation of yogurt, are made of steel, easy to clean and don't smell. The length of shaft can be adjusted through lid based adjusters. Blades and shaft can be detached. Spare parts are easily available and repair is economical.



Figure 3: Traditional Wooden Milk Churner, India

use these electric churners for fear of electric shocks as the shaft is put into wet place (yogurt). Through practical demonstrations and marketing services offered by manufacturers, this fear was gradually overcome. Manufacturers also provided training to local electricians/mechanics for repair and maintenance of these churners. At the start a universal model came in to market but later on changes and modifications were made into it based on feedback from users. At present models of different sizes are made and marketed. Two sizes in particular are common in the Subcontinent, a standard size and a smaller size, of respectively 0.5 kilowatts and 0.25 kilowatts. Prices are according to size and quality and range between US \$12 and 18 in the retail market. Women have embraced the devices as a big relief that reduces their burden. The device touches the height of its popularity and these days the electric churner is a common part of dowries in rural areas. Of course electric churners are operated by power and thus not feasible where electricity is not available.



Pakistani model having blades horizontally so that touching of blades to utensil's bottom is not scratched accidentally. Shaft is adjusted in length according to utensil and blades can be separately replaced when required. Weight of devices is enough to stabilize the rotation and function of churner. The lid can be

replaced/attached according to diameter of utensil. It is shock proof and blades are made of plastic. Blades need careful cleaning immediately after use otherwise become smelly. Spare parts are available and repair can be done locally.



Milk churner having single blade but holes into it – European old model



Wooden traditional milk churner – European old model

Planned activities

The Spate Irrigation Network is familiarizing rural women in Yemen and Ethiopia an electric milk churner. These simple electric machines have been found very useful by local women and now there is high demand. The machine reduces the work load, improves hygiene, is easy to operate and

handle and, most importantly, is affordable for village women. It is possible a group of women could share in the purchase of a single milk churning machine. It is highly recommended to provide contacts for spare parts and to train local artisans to repair and maintain the machine.

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