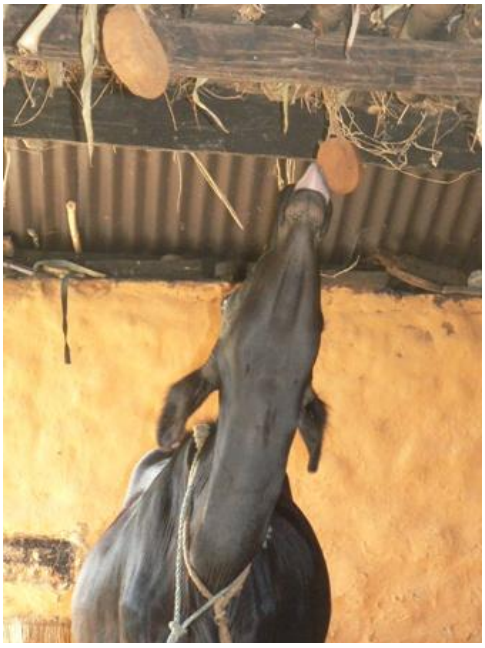
PRACTICAL ACTION
Technology challenging poverty

SALT LICKS
IN NEPAL

technical brief

Project Background

According to the National Living Standard Survey conducted in 2004, some 31% of Nepalese still live below the extreme poverty line. Economic growth and increased levels of production provide access and relief to the poor helping the poor to combat poverty; especially important is the modernisation of agriculture and an increase in the yields. Between two and three million farmers in Nepal are involved in the dairy sector in Nepal, who either own cows or buffaloes and produce milk that they trade for income, or are involved in producing the feed, looking out for the health of the animals, or collecting, transporting, processing and selling dairy products. Additionally, it is estimated that every 10 to 20 litres of milk marketed a day creates one additional job for someone not farming themselves, but earning a living from supporting the chain that produces milk and takes it to those who drink and eat milk-based products.



A local breed cow using a salt lick in Chitwan, Nepal. Photo: Practical Action.

Practical Action Nepal has, with the financial support of the UK's Department for International Development (DFID), implemented the 'Dairy component' of the Market Access for Smallholder Farmers (MASF) project, with the aim of the programme to reduce poverty of smallholder farmers in Nepal and a specific objective to increase sustainable income of 10,000 smallholder dairy farmers within two years.

Nutrition deficiencies in cattle

Much of Nepal's landscape is steeply hilled, with lots of good land covered in protected forests. The subsequent lack of land to cultivate grass for cattle feed means that many poorer farmers have to rely on straw and bran to feed their cows with, which both have very low nutritional contents. One of the major problems for Nepalese farmers is that the resulting nutritional deficiencies in cattle have prevented them from producing high quality milk in sufficient quantities to attract the interest of cooperatives and companies, and has generally limited the growth of the industry on a nation-wide basis. Consequently, a key aim of the project was to develop ways to help farmers improve the nutrition of their cattle, and in turn increase the quantity and solids content of their milk.

Salt Licks

Salt licks (or mineral licks) are often found as natural occurrences in the wild, where mineral deposits form in clay, that wild animals can then lick to obtain mineral nutrients. Whilst sodium (Na) is the mineral most commonly required to supplement animals' nutritional intakes, natural mineral lick sites often contain calcium (Ca), iron (Fe), magnesium (Mg), phosphorus (P), potassium (K) and zinc (Zn) among others (Kreulen, 1985).

Practical Action, The Schumacher Centre, Bourton on Dunsmore, Rugby, Warwickshire, CV23 9QZ, UK
T +44 (0)1926 634400 | **F** +44 (0)1926 634401 | **E** infoserv@practicalaction.org.uk | **W** www.practicalaction.org

It is possible to create artificial mineral licks for use with domesticated animals, to improve their nutritional intake. This brief looks at the process developed within the MASF project to utilise locally available materials (red mud, egg shells and salt) in Nepal to create a low-cost salt lick, or 'cow-lollipop', known in the local language as a 'Khanij Dikka'.

Benefits

Cows will natural lick the mineral block when inclined, taking in iron from the red earth, calcium and phosphorus from egg shells, and iodine, sodium and chlorine from the salt. These are all essential minerals necessary for the good health of cows and should result in the production of a good quantity of milk that is high in fat.

How to make a Nepalese Salt Lick for Cows (Khanij Dikka)

1. Take 1 kilogram of that red mud that's at the back of the homestead;

2. Dry it out in the sun for a couple of days and pound into a powder;

3. Roast 10 egg shells, pound into a powder and add it to the red dirt;

4. Mix this with around 1 kilogram of regular salt, the stuff you can buy at the shop a few doors down;

5. Add ½ a kilogram of flour to bind the mixture;

6. Finally pour in some water as required until the mixture holds together and can be shaped into blocks. Shape them into donut shapes (making sure you leave a hole in the middle of the block);

7. Leave to dry for a week in the shade, then another week in the sun until hard;

8. Use the hole in the middle to string the block up in your cow-shed. Make sure that your cow can reach the block at a stretch, but not easily. String up one of these blocks for each of your cows.

- *Cost* *~30 Nepali Rupees (14-16 for salt, 13-15 for flour)*
- *Weight* *~2.5kg*
- *Lifespan* *~1 month*
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Alternative Solutions

The Khanij Dikka is made from materials that are readily available in Nepal. However, it may be necessary to use an alternative solution in other environments, particularly where red mud is not part of the landscape.

In much of the arid landscape of Saharan Africa, cattle feeds are limited to maize stalks, millet and dry grass, which requires solutions to deliver additional nutrients. An example of this is in Kenya, where the Kenya Agricultural Research Institute (KARI) is one of several organisations that have published guidelines on the production of mineral licks known as 'urea blocks'. These are hard blocks that can be made with a number of ingredients (KARI, 2008), (ALIN, 1998):

- *Urea*: provides fermentable nitrogen, and is the most important part of the block; helps cattle to digest feeds.
- *Molasses*: fermentable substrate and various minerals; gives the block an attractive taste to cattle.
- *Wheat or bran*: provides structure and nutrients (including fat, protein and phosphorus) to the block.
- *Other minerals*: Added where appropriate.
- *Gelling agent*: magnesium oxide, bentonite, calcium oxide, calcium hydroxide and cement have all been successful. Cement is the most effective and easily available, despite some concerns over negative health effects.

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The blocks should also be suspended to prevent livestock from biting on them and consuming excessive urea (and concrete), and can give the animals both a mineral supplement and an aid to digestion of feeds, in order to extract the full amount of nutrients (ALIN, 1998). The blocks can also include medication to help de-worming (KARI, 2008)

For more information on production processes for urea blocks, refer to KARI here, or the FAO here, along with the references in this technical brief.

Further Information

Market Access for Smallholder Farmers (MASF)
Website: http://practicalaction.org/market-access-for-smallholder-farmers-nepal

Nimbus Nepal - Asian animal feed manufacturer
Website: http://nimbusnepal.com/

References

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Salt Licks was written by Martin Bounds for Practical Action, May 2012

Practical Action
The Schumacher Centre
Bourton-on-Dunsmore
Rugby, Warwickshire, CV23 9QZ
United Kingdom
Tel: +44 (0)1926 634400
Fax: +44 (0)1926 634401
E-mail: inforserv@practicalaction.org.uk
Website: http://practicalaction.org/practicalanswers/

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