Maziwa Zaidi (More Milk) in Tanzania

The ‘Mazzican’ improves the bacteriological quality of milk and contributes to higher profits

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Key messages

• Good milk handling leads to better quality milk, safer products for consumers and higher profits for producers and processors.
• The Mazzican is a much better container than plastic jerry-cans to maintain good bacteriological quality during milking and transportation.
• Regulatory agencies should replace jerry-cans with better milk handling vessels like the Mazzican.
• Minor improvements to the Mazzican design are required to improve its handling during milking and transportation.

Objectives and approach

• Most smallholder farmers in Tanzania use non-food grade plastic jerry-cans during milking and transportation because they are cheap. Studies show this contributes to the poor hygienic quality of milk leading to spoilage and rejection.
• An affordable food grade plastic vessel known as Mazzican developed and tested elsewhere in East Africa showed potential to help produce better quality milk.
• A study to validate the efficacy of the Mazzican in improving bacteriological quality of milk was conducted the ‘pastoral producer- and smallholder-milk trader’ value chains in Mvomero district in Morogoro, Tanzania.

Key results

• Pastoral milk had better bacteriological quality compared to smallholder dairy milk.
• There was higher improvement in bacteriological quality of pastoral cattle milk (>75%, TPC & TCC) compared to smallholder dairy cattle milk (69%, TPC; 42%, TCC) handled in Mazzican compared to jerry cans.
• The large size of the Mazzican and side handle was inconvenient for holding during hand-milking and carrying during transportation.

Opportunities to invest and scale

• Farmers’ organizations: Marketing arrangements for the Mazzican that involves a check-off system to enhance access to the container by pastoralists and smallholders.
• Private manufacturer: Re-design the Mazzican so it can be held from the top to improve its portability.
• Private manufacturer: Design a smaller Mazzican to improve ease of handling during milking.

Table 1: Bacteriological quality of smallholder dairy and traditional cattle raw milk delivered to milk traders in Mvomero District Morogoro using two types of vessels. (TPC= Total Place counts; TCC= Total coliform counts)

<table>
<thead>
<tr>
<th></th>
<th>Traditional cattle</th>
<th>Smallholder dairy</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Jerry can (n=18)</td>
<td>Mazzican (n=30)</td>
</tr>
<tr>
<td></td>
<td>Jerry can (n=20)</td>
<td>Mazzican (n=15)</td>
</tr>
<tr>
<td>Total plate count (cf.u/ml)</td>
<td>3.90E+05</td>
<td>9.23E+04</td>
</tr>
<tr>
<td>Total coliform (cf.u/ml)</td>
<td>1.02E+03</td>
<td>2.28E+02</td>
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<tr>
<td>% Reduction, TPC</td>
<td>76.33</td>
<td>69.48</td>
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<tr>
<td>% Reduction, TCC</td>
<td>77.62</td>
<td>42.3</td>
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</tbody>
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Plate 1: Hand milking directly in Mazzican

Plate 2: Transporting milk in Mazzican

Fig 1. Bacteriological quality of milk handled by use of jerry cans and Mazzican