Chewing Sugarcane Production:
An Approach to Combat Malnutrition and Poverty

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Sugarcane

Scientific name: *Saccharum officinarum*

Family: Gramineae

• It’s a giant tropical grass, full of sugar

• Two types based on use:
  a) Industrial cane
  b) Chewing cane
a) Industrial cane:

• In Bangladesh, total area is about 0.1 million ha.

Characteristics:
• Very hard and strong,
• Sugar content 12-13%.
• Suitable for sugar, alcohol, goor (raw sugar) & juice production
b) Chewing cane

• In Bangladesh, total area is about 2,000 ha.

Characteristics:
• Very soft, quite juicy, thick, attractive in color, sugar content 10-11%.
• Suitable for Chewing purposes and juice production.
<table>
<thead>
<tr>
<th>Chewing varieties</th>
<th>Main characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSRI Akh 41 (Amrita)</td>
<td>Slight crispy and delicious,</td>
</tr>
<tr>
<td>BSRI Akh 42 (Rangbilash)</td>
<td>Attractive color, juicy with pleasant test</td>
</tr>
<tr>
<td>China</td>
<td>Very soft, juicy &amp; attractive color</td>
</tr>
</tbody>
</table>

![BSRI Akh 41](image1)

![BSRI Akh 42](image2)

![China](image3)
Why Chewing cane?

Contribution to human nutrition

Excellent source of iron specially for Children, pregnant women and their fetus. Contains Ca, Mg, K & Mn as well.

Nutrition Facts of juice (100ml)

Total Carbohydrate – 24% of D. R.

Sodium (Na) – 2% of D. R.

Calcium (Ca) – 1% of D. R.

Iron (Fe) – 19% of D. R.

Magnesium (Mg) – 2% of D. R.

(Juice extraction/Chewing cane: 1200-1800ml @60% extraction; wt. of a cane: 2.0-3.0kg)
Instant energy drink

- The best replacement/alternative of artificial energy drink
  
  Re-hydrate human body, provide instant energy, quenches thirst & fatigue, diuretic, excellent natural source of glucose with very pleasant test

Source: https://goqii.com/blog/sugarcane-and-its-10-benefits/
Health benefits:

- **Glycemic index (GI) is 43**: Not harmful for Diabetes
- **Effective against cancer, specially prostate & breast cancer**: Alkaline forming food and alkaline media helps to inhibit carcinogenic process
- **Contains good level antioxidants**: Boost immune systems of the body

Source: https://goqii.com/blog/sugarcane-and-its-10-benefits/
https://www.organicfacts.net/sugarcane-juice.html
Health benefits:

- Helps keeping the bilirubin level in control.
- Strengthen jaws, gums and teeth
- Triggers the saliva production
- Effective against febrile disorders of infants and children.

Source: https://goqii.com/blog/sugarcane-and-its-10-benefits/
https://www.organicfacts.net/sugarcane-juice.html
Environmental benefits:

- **Ecofriendly technology:** No adverse effect on environment
- **Absorb more CO₂ from atmosphere:** Sugarcane is C₄ crop with high efficiency
- **Keeps top soil healthy:** It takes nutrition from very deep soil

Why Chewing cane?
Why Chewing cane?

Potential for cultivation:

- Technically sound, sustainable & widely adaptable
- Easy to cultivate
- Suitable for family labor utilization
- Required Inputs are easily available
- Sustainable technology: Farmers can produce their own seeds themselves
- Easily marketable: high demand in everywhere as everybody especially the children likes to consume
- Juice production and small business can develop in urban & peri-urban areas
Potential for cultivation

Where we can grow?

- Can be grown in
  - High, medium high Lands
  - Successful intercropping is possible like sweet corn, potato etc.
  - Homestead area, crop fields (*small, medium & large fields*)
  - Everywhere in Bangladesh

Who can grow?

- Man, women, boys/girls
- Small, medium and large farmers
- Can be produced for family consumption and/or as commercial for income generation
Potential for cultivation

When to plant and grow
- Can be planted during August to April (according to requirement)
- Can be harvested starting from April to onwards
- Can fulfill the requirement of juice during summer period
### Why Chewing cane?

Economically highly profitable

<table>
<thead>
<tr>
<th>Total cost:</th>
<th>Tk. 1500/ dec</th>
<th>(Seed, treatment by MHAT, settlings preparation in polybag = Tk. 750/ dec) + (Fertilizers, manures, irrigation, pesticides, etc. =Tk. 750/dec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settling raising and other inputs</td>
<td>Tk. 1500/ dec</td>
<td>(Seed, treatment by MHAT, settlings preparation in polybag = Tk. 750/ dec) + (Fertilizers, manures, irrigation, pesticides, etc. =Tk. 750/dec)</td>
</tr>
<tr>
<td>Total production</td>
<td>320 cane/dec</td>
<td>80 settlings/dec X 4 cane/settling= 320 canes</td>
</tr>
<tr>
<td>Gross income</td>
<td>Tk. 9,600/dec</td>
<td>320 canes @ Tk. 30.00 per cane</td>
</tr>
<tr>
<td>Net profit</td>
<td>Tk. 8100/dec</td>
<td>(Gross income - Total cost)</td>
</tr>
<tr>
<td>Benefit cost ratio (BCR)</td>
<td>5.4</td>
<td>(8100/1500)</td>
</tr>
</tbody>
</table>
Combating Malnutrition and Poverty

**HOW?**

- Require 1 decimal area around the homestead for a 5 member family
  nutrition + small income
- Easy technology: women and/or children can manage 1 dec cane
- Women empowerment: women can easily take care 1 dec cane
- 300 canes produced in 1 decimal area
- The family can consume 150 canes (@ 2.5 canes per day for 2 months)
- One family member can have 500 ml juice per day for 2 months
- Thus the family members fulfill (for 2 months):
  - Iron - 95% of D.R.
  - Sodium and magnesium – 10% of D.R.
  - Calcium – 5% of D.R.
  - This is specially important for pregnant women and children
Combating Malnutrition and Poverty

Income and profit
- Tk. 4500 can be earned (150 canes sold at Tk 30/cane)
- A net profit can be gained of Tk 3000/dec/year

Other critical benefits
- Can be a critical source of drinking water, energy and nutrition supply during the emergency period like flash flood: Disaster mitigating crop
- Instant energy provider: Require no processing and cooking
- Can be critical source of energy and nutrition supply during lean months (no fruits, vegetables): can be useful for school children
- Can be critical for re-hydration of the body during flash flood, diarrhea, Jaundice etc.
- Fulfill the sugar requirement for proper brain development of children
How we (BSRI) can support

If fund is available:

- Technical supports like training to staffs and farmers (on production, insect pest, diseases control, IPM technology etc.)
- Seed treatment, production of quality seeds & polybag settlins
- Field demonstration, field day etc.
Thanks a lot for your time & attention.