Transforming Sugar Industry Ecosystem Sustainability Through Innovation
Sugar Industry Overview – Sugarcane production

- **Brazil**
  - 1st
  - 2nd largest (out of 130 countries) grower in the world
  - 132,67,500 acres of sugarcane is grown by 44,00,000+ farmers
  - Largest perennial crop cultivation in India
  - Accounts to 30% of the Rural Economy

- **India**
  - 2nd
  - 2nd largest (out of 130 countries) grower in the world
  - 132,67,500 acres of sugarcane is grown by 44,00,000+ farmers
  - Largest perennial crop cultivation in India
  - Accounts to 30% of the Rural Economy

- **China**
  - 3rd
Sugar Industry Overview – Sugarcane Yield & Recovery

Despite being 2nd largest grower, India’s yield is 30%-40% Less compared countries like Brazil, Australia, Columbia

Average Sugar Recovery is between 9%-12% versus world best ~14%
World Trends – Sugar Production and Consumption

Global sugar production for 2015/16 is forecast down 3 million metric tons (raw value) at 172 million with reductions in Brazil, India, the European Union, and Ukraine more than offsetting gains in Australia, Russia, and Turkey. Consumption is projected to reach a record 173 million, drawing ending stocks down 4 million tons to 40 million. Global imports are expected to grow to a record 52 million tons.

To receive the circular via email, register at https://public.govdelivery.com/accounts/USDAFAS/subscriber/new.

Approved by the World Agricultural Outlook Board - USDA

India’s production is forecast to drop 1.7 million tons to 28.5 million due to lower yields. Consumption rises to a record 28.0 million tons while exports are boosted 75,000 tons to 2.5 million. India is the world’s largest consumer and second-largest producer of sugar.

China’s production is projected at 10.6 million tons, down 400,000 tons on another decline in area due to high producer costs. Stocks are forecast down 1.5 million tons to 5.8 million as supplies are outpaced by consumption.

Production in the European Union is forecast at 16.1 million tons, down 650,000 on reduced sugar beet area. As consumption continues to trend higher, imports are projected to grow 200,000 tons to 2.8 million tons. Exports are expected at 1.5 million tons, limited by the World Trade Organization sugar export ceiling.
Why NubeSol?

We will positively impact by increasing the Sugar Recovery between 1%-5% 

- Accurate Cane acreage prediction
- Improved Productivity and Increased Sugarcane Yield
- Maximize Sugar Recovery and Reduce Operational Cost
- Improved Field Staff Efficiency and Stronger Grower Loyalty

CIMS Platform is a step ahead in all these NEEDS and addresses them effectively.
Yield Research – Sugarcane and Sugar

70% of all the research has gone into Sugarcane yield increase.

Less to No Focus on Pre-Harvest and Post-Harvest practices and processes which are Critical for Sugar Recovery.

Planning, Harvesting & Transport

Cane Crushing and Sugar Production

Germination & Establishment
Tillering Phase
Grand Growth
Ripening

SUAGRCANE YIELD

SUGAR YIELD
Yield Expectations – Sugarcane and Sugar

70% of all the research has gone into Sugarcane yield increase.

**Quantity**
Increase cane supply for longer crushing cycle – improve operational and cost efficiencies.

**Quality**
Manage and harvest in time high sugar recovery cane.

Resulting in increased sugar recovery.

Less to no focus on pre-harvest and post-harvest practices and processes which are critical for sugar recovery.

Germination & Establishment
Tillering Phase
Grand Growth
Ripening
Planning, harvesting & transport
Cane crushing and sugar production

SUAGRCANE YIELD
SUGAR YIELD
NubeSol’s – Crop Management Information System

CIMS is a Remote Sensing solution for Agriculture, which can be used by the Farmer or the Farm Extension worker to make intelligent decisions to increase farm productivity while decreasing the input costs!!
Efficient Transport Management

Every 24 hours delay in crushing from harvesting leads to 16% - Tonnage loss and 5% - Sugar recovery loss

Predictable Quality, Quality and Recovery are the key pain points
Every 24 hours delay in crushing from harvesting leads to **16% - Tonnage loss** and **5% - Sugar recovery loss**
Crop Care – Pains and Impacts

Predictable Quality, Quality and Recovery are the key pain points

With dynamic data feeding, CIMS has capability to Track, Measure, Analyse and Predict efficiency of each of the entity in the Post Harvest Space

Return – What time he started?

Loading – How much time?

Harvesting – How much time?

Start – What time he started?

Waiting – Since when?

Schedule – Is he on time?
Harvesting and Transportation Sample Dashboards

<table>
<thead>
<tr>
<th>Date</th>
<th>16th Feb 2016</th>
<th>FO Name - Basappa Biradar</th>
<th>Zone - Dharwad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truck #</td>
<td>Driver name</td>
<td>Driver ID</td>
<td>Village</td>
</tr>
<tr>
<td>KA51M0324</td>
<td>Sangappa</td>
<td>983547869</td>
<td>345 Betigeri</td>
</tr>
<tr>
<td>KA51N4455</td>
<td>Basava</td>
<td>983547645</td>
<td>453 Betigeri</td>
</tr>
<tr>
<td>KA51P2312</td>
<td>Mohan</td>
<td>773547869</td>
<td>678 Betigeri</td>
</tr>
<tr>
<td>KA28M0111</td>
<td>Raghu</td>
<td>983547869</td>
<td>667 Betigeri</td>
</tr>
<tr>
<td>KA51M0324</td>
<td>Sandeep</td>
<td>983777779</td>
<td>899 Betigeri</td>
</tr>
<tr>
<td>KA51M0324</td>
<td>Sangappa</td>
<td>983547869</td>
<td>345 Betigeri</td>
</tr>
</tbody>
</table>

**Cane Yard Vehicles - Harvesting age**

<table>
<thead>
<tr>
<th>Journey Type</th>
<th># Trucks</th>
<th>Not responding</th>
<th>Delayed</th>
<th>Slightly delayed</th>
<th>On time</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>FO Name - Sangu</td>
<td>Zone - Bailhongal</td>
<td>11</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Returning</td>
<td>15</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>18</td>
<td>26</td>
</tr>
</tbody>
</table>

**FO Name - Basavaraj**

<table>
<thead>
<tr>
<th>Journey Type</th>
<th># Trucks</th>
<th>Not responding</th>
<th>Delayed</th>
<th>Slightly delayed</th>
<th>On time</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Plots</td>
<td>6</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Returning</td>
<td>20</td>
<td>0</td>
<td>2</td>
<td>7</td>
<td>11</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>0</td>
<td>3</td>
<td>8</td>
<td>15</td>
<td>26</td>
</tr>
</tbody>
</table>

**Date** 16th Feb 2016

<table>
<thead>
<tr>
<th>Journey type</th>
<th># Trucks</th>
<th>Not responding</th>
<th>Delayed</th>
<th>Slightly delayed</th>
<th>On time</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Plots</td>
<td>203</td>
<td>9</td>
<td>45</td>
<td>59</td>
<td>90</td>
<td>203</td>
</tr>
<tr>
<td>Returning</td>
<td>97</td>
<td>1</td>
<td>14</td>
<td>12</td>
<td>70</td>
<td>97</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>10</td>
<td>59</td>
<td>71</td>
<td>160</td>
<td>300</td>
</tr>
</tbody>
</table>
Screen Shots of Implementation

We can derive many operational efficiency metrics.
Why CIMS?

- Geocode & Remote Sensing leads to accurate cane acreage predictions.
- Crop Care leads to Improved Productivity and Increased Sugarcane Yield.
- Timely Harvest & Efficient Logistics leads to Maximized Sugar Recovery and Reduced Operational Cost.
- Quality advisory and constant guidance leads to Improved Field Staff Efficiency and Grower Loyalty.

CIMS platform drives Predictable Quality, Quality and Recovery.