**BATTLING VITAMIN A DEFICIENCY**

**Can a "Super Banana" Reduce Vitamin A Deficiency?**

Vitamin A deficiency is rare in developed countries but it remains a major public health issue in more than half of all countries, especially in Africa and South-East Asia. Researchers at the Queensland University have created a “super banana” genetically engineered to contain alpha- and beta-carotene that they hope will reduce vitamin A deficiency in parts of the world where bananas are a staple crop.

“Good science can make a massive difference here by enriching staple crops such as Ugandan bananas with pro-vitamin A and providing poor and subsistence-farming populations with nutritionally rewarding food.”

- Project leader, Queensland University professor James Dale

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**Impact to the Goals**

<table>
<thead>
<tr>
<th>Safety Goal</th>
<th>650,000 - 700,000 deaths annually</th>
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<td>&gt;250,000 children going blind annually</td>
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**Basic Level Cause Map**

- **Safety Goal**: Impacted
- **Evidence**: Vitamin A deficiency is the leading cause of blindness in children worldwide.
- **Cause**: Lack of vitamin A in diet
- **Effect**: 650,000 - 700,000 deaths annually

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**Solutions**

There have been a number of different ways to help reduce the occurrence of vitamin deficiency such as distribution of vitamins and introduction of new crops, but the problem of vitamin deficiency is still a widespread issue. This led to the idea of genetically modifying local crops to be more nutritious. The idea behind the “super banana” is that they would look the same as other East African Highland bananas and grow in the same conditions, but that they would be enriched with additional nutrients. The inside of the “super bananas” is more orange than regular East African Highland bananas, but the outside looks the same.

*Lab tests with gerbils have been successful and the first human trials of the modified bananas are scheduled starting this summer. If the human trials are successful, the next necessary step is for Uganda’s legislature to approve a bill allowing the crops to be grown. Researchers are hoping to have the modified bananas growing in Uganda by 2020 if the government approves the project.*

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**Cause Mapping**

- **Problem**: Preventable blindness in children and deaths caused by vitamin A deficiency
- **Causes**: More than half of all countries, especially in Africa and South-East Asia
- **Date**: Ongoing
- **Facility, site**: N/A
- **Unit, area, equipment**: Nutrition
- **Task being performed**: Ongoing

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**Safety Goal**: Important for healthy vision

**Evidence**: Vitamin A deficiency is the leading cause of blindness in children worldwide.

**Important for healthy bones**

**Evidence**: Vitamin A deficiency is rare in developed countries but it remains a major public health issue in more than half of all countries, especially in Africa and South-East Asia.

**Important for healthy vision**

**Evidence**: Vitamin A deficiency is the leading cause of blindness in children worldwide.

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**Problem Solving • Incident Investigation • Root Cause Analysis**

- **Step 1**: Problem
  - What is the Problem?
- **Step 2**: Analysis
  - Why did it happen?
- **Step 3**: Solutions
  - What will be done?