**Overview**

**Name:** The Right Source and Rate of Potassium (K) for Processing Tomatoes  
**Location/Terrain:** Xinjiang, China  
**Crop(s):** Tomatoes  
**Nutrient(s):** Potassium (K)  

**Rationale:** Due to years of omission of K in nutrient management in production of tomatoes in the region, yields were restricted by inadequate K.

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**Issue(s) of Concern/Challenges:**
Farmers often omitted K in nutrient management in the production of tomato crops for years, leading to significant soil K depletion and decreased soil K availability. Therefore, the yield and benefit of processing tomatoes in the northwestern province is often restricted by inadequate K nutrition.

**Practice Description:**
Test different types of K fertilizer to see which one increases yields in a cost-effective manner.

**Practice Objectives:**
Find both the most cost-effective and yield maximizing K containing fertilizer

**Outcomes:**
The most common sources of K fertilizer are KCL, KH2PO4, KNO3 and K2SO4. It was concluded that KCL was the most economical source of K.

**Significance:**
The use of KCL resulted in an increase in yields and profit.
We Need your Help

Introduction

Initial Key "Hot Spot" Nutrient Management

have increased almost nine times since 1969.1

food by 2050 than currently produced to sustain a world population of 9 billion. There is widespread scientific

policy and investment interventions to address the threats

management best practices and policies in key "hot spots"

support of Global Nutrient Cycle"

foundations for reducing nutrient enrichment and

"Global

implementation.

stressed coastal ecosystems, which is directly linked to "dead zones" of low oxygen. These hypoxic "dead zones"

underlying policy foundation.

farmers in the developing world to scale-up and implement nutrient management best practices and establish an

& Technology Foundation (GETF) is supporting the GEF and UNEP to develop a global "tool box" of nutrient

conservation and sustainable management of our soil health and  water resources. The Global Environment

The 2009 the World Food Summit on Food Security stated that the world must produce 70 percent more

We request your assistance to engage experts in the developing world to gather best practices and case


For more information, please contact Chuck Chaitovitz at chuck.chaitovitz@gef.org or visit www.gpa.unep.org/index.php/global-partnership-on-nutrient-management.

Table 1. Effect of different sources of K on yield and benefit of processing tomatoes in Xinjiang (2004-2005) (Hu et al., 2007; Zhang et al., 2008).

<table>
<thead>
<tr>
<th>K source</th>
<th>2004 Toutunhe farm 1</th>
<th>2005 Toutunhe farm 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yield, kg/ha</td>
<td>Income from K application, $/ha</td>
</tr>
<tr>
<td>KCl</td>
<td>78,510</td>
<td>1,144</td>
</tr>
<tr>
<td>K2SO4</td>
<td>73,350</td>
<td>972</td>
</tr>
<tr>
<td>K2SO4-2MgSO4</td>
<td></td>
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Table 2. Effect of different sources of K on yield and benefit of processing tomatoes in Xinjiang (2004-2005) (Hu et al., 2007; Zhang et al., 2008).

<table>
<thead>
<tr>
<th></th>
<th>K2O rate, kg/ha</th>
<th>Yield t/ha</th>
<th>Lycopene, mg/100g</th>
<th>Solids, %</th>
<th>Vitamin C, mg/100g</th>
<th>Income from fertilizer application, $***</th>
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</thead>
<tbody>
<tr>
<td>2003*</td>
<td>0</td>
<td>86.1 b*</td>
<td>6.1</td>
<td>8.9</td>
<td>8.0</td>
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<tr>
<td></td>
<td>90</td>
<td>92.6 b</td>
<td>8.0</td>
<td>8.9</td>
<td>8.3</td>
<td>64</td>
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<td>180</td>
<td>101.3 a</td>
<td>10.5</td>
<td>10.5</td>
<td>9.7</td>
<td>341</td>
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<tr>
<td></td>
<td>270</td>
<td>91.7 b</td>
<td>8.6</td>
<td>8.5</td>
<td>8.9</td>
<td>-164</td>
</tr>
<tr>
<td>2004*</td>
<td>0</td>
<td>95.1 b</td>
<td>6.1</td>
<td>8.9</td>
<td>8.0</td>
<td></td>
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<tr>
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<td>90</td>
<td>98.8 b</td>
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<td>270</td>
<td>95.4 b</td>
<td>8.6</td>
<td>8.5</td>
<td>8.9</td>
<td>-164</td>
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