Farmer Organisations in Africa, their challenges and opportunities in benefitting from the AFCFTA

Suitability of coffee production in Africa: the impact of climate change

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Global Coffee Production

2019 INTER-AFRICAN COFFEE ORGANISATION ANNUAL MEETINGS
7TH AFRICAN COFFE SYMPOSIUM
NAIROBI - KENYA
Characteristics of African Coffee production

- Africa is the home of both the Arabica and Robusta coffees
- Coffee production in Africa is characterized by
  - Small scale farmers with small holdings marketing their coffee through cooperatives
  - Both wet and dry processing methods used
  - Old and sometimes obsolete equipment used
Characteristics of African Coffee production

- Africa is the home of both the Arabica and Robusta coffees
- Coffee production in Africa is characterized by:-
  - Small scale farmers with small holdings marketing their coffee through cooperatives
  - Both wet and dry processing methods used
  - Old and sometimes obsolete equipment used
✓ Most coffee is grown rainfed subject to weather variations

✓ Temperatures are increasing, number of rainy days per year decreasing while storm days are increasing

✓ Heavy downpours that cause erosion and destruction of land and property

✓ The high temperatures and erratic rainfall not conducive to good coffee production

✓ Recipe for decreasing production
Climate change is the shift in worldwide weather phenomena associated with an increase in global average temperature.
## 10 year average max temp at CRI Ruiru 1945-2014

<table>
<thead>
<tr>
<th>Period</th>
<th>Average max temp °C</th>
<th>Change in average max temp °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1945-54</td>
<td>24.9</td>
<td></td>
</tr>
<tr>
<td>1955-64</td>
<td>24.8</td>
<td>-0.1</td>
</tr>
<tr>
<td>1965-74</td>
<td>25.3</td>
<td>0.5</td>
</tr>
<tr>
<td>1975-84</td>
<td>25.6</td>
<td>0.3</td>
</tr>
<tr>
<td>1985-95</td>
<td>25.6</td>
<td>0</td>
</tr>
<tr>
<td>1995-2004</td>
<td>25.7</td>
<td>0.1</td>
</tr>
<tr>
<td>2005-2014</td>
<td>25.9</td>
<td>0.2</td>
</tr>
</tbody>
</table>
Rainfall at Ruiru 1945-2014
Total Annual Number of Rainy Days

$y = -0.273x + 634.83$
Number of storm (>50mm) rain days

![Graph showing the number of storm (>50mm) rain days from 1975 to 2020. The trend line is given by the equation y = 0.0486x - 94.414.](image-url)
➢ Erratic rainfall results in random flowering, with flowers and berries at different stages of growth being on the same primary branch
➢ Coffee diseases become more prevalent and severe
Effect of Climate Change on Coffee Growth,

- Change in temperature will affect insect pest dynamics

- Minor pests may become major e.g. thrips that are favoured by hot dry weather
Mitigation and Adaptation Strategies

Planting Shade Trees

- Shade reduces the air temperature by about 4°C at midday
- Shade evens out flowering reducing biennial bearing, overproduction and die back
- Trees take up carbon dioxide from the atmosphere and store it within the plant.
- The litter from the leaf fall conserves soil moisture & reduces weed growth
Mitigation and Adaptation Strategies

Soil and water conservation
➢ Conserve all the rainy water by forking, digging terraces before coffee establishment
Mitigation and Adaptation Strategies

Soil and water conservation

➢ Conserve all the rainy water by mulching which also prevents soil erosion

➢ Other include

  ➢ Forking
  ➢ Water harvesting in the farm, homes and factories
Mitigation and Adaptation Strategies: Way Forward

- Growing coffee in new high altitude areas?
- Development of heat tolerant varieties?
- Development of insect pest tolerant varieties?
- Alternate coffee processing?
Way Forward

- Adequate financing of coffee research
- Sharing of varieties and germplasm
- Encouragement for the youth to join coffee production
- Adoption of climate smart strategies
- Production of specialty coffees
- Domestic and promotion of inter African coffee consumption
- IACO to ensure that coffee is included in AfCFTA.
Thank you