Pesticide Use and Farmers’ Health Costs in Cashew Production Systems in Nghia Trung Village
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Introduction
The cultivation of cashew in Nghia Trung village has been intensified over time with increasing use of inorganic fertilizer and pesticides. Pesticide use however poses threats to the environment, including adverse health effects on farmers and others, and pollution to the watershed. Therefore, it is vital to know how current pesticide use endangers farmers’ health and whether the marginal gain from reduced pesticide use could surpass the marginal loss in cashew productivity and farmers’ benefits.

Objective
This study was conducted to determine the impact of pesticides on cashew yield and estimate the health costs caused to farmers by pesticide use.

Methods
• The Cobb-Douglas function was employed to examine pesticide productivity on cashew production.
• A health cost model was applied to quantify the health impairment of farmers with respect to personal characteristics of the farmers and their use of pesticides.
• Data for estimating pesticide productivity was generated from the survey of 80 randomly-selected cashew farmers for the year 2005, 2006 and 2007.
• Farmer’s health costs related to pesticide use was gathered from the surveyed farmers for the year 2006.

Common practice
Preventive spraying is the main method
Many farmers have poor or no protection

Estimated Production Function for Cashew

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Coefficient</th>
<th>Standard error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>6.469</td>
<td>0.342</td>
</tr>
<tr>
<td>Log of total dosage</td>
<td>0.161</td>
<td>0.060***</td>
</tr>
<tr>
<td>Log of number of applications</td>
<td>0.193</td>
<td>0.091**</td>
</tr>
<tr>
<td>Log of age</td>
<td>0.196</td>
<td>0.098*</td>
</tr>
<tr>
<td>Dummy for smoking</td>
<td>0.222</td>
<td>0.056***</td>
</tr>
<tr>
<td>Dummy for drinking</td>
<td>0.232</td>
<td>0.056***</td>
</tr>
<tr>
<td>Nr of observations</td>
<td>240</td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>0.63</td>
<td></td>
</tr>
</tbody>
</table>

Results
• Preventive spraying is the main pest management method among cashew farmers.
• Insecticides however do not have significant impact on cashew yield.
• Herbicide use has significant effect on cashew yield but it is still not clear whether yield increase is mainly due to reducing weed competition or from preventing harvesting losses.
• Total pesticide dose and number of times the farmers had contact with pesticides significantly influence their health costs.

Conclusions
These findings indicate that promoting sustainable pest management practices in a cashew-based vegetable agro-forestry production system will reduce production and farmers’ health costs.

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