

# **An Economic Analysis of Farm- Level Technical Adoption: Lessons learned from Sulawesi**

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# Motivating Questions

**(1) Given reported farm problems, what explains choice of techniques to resolve or address problems?**

**(2) Are the techniques used by farmers to improve cocoa quality and reduce pest infestation profitable?**

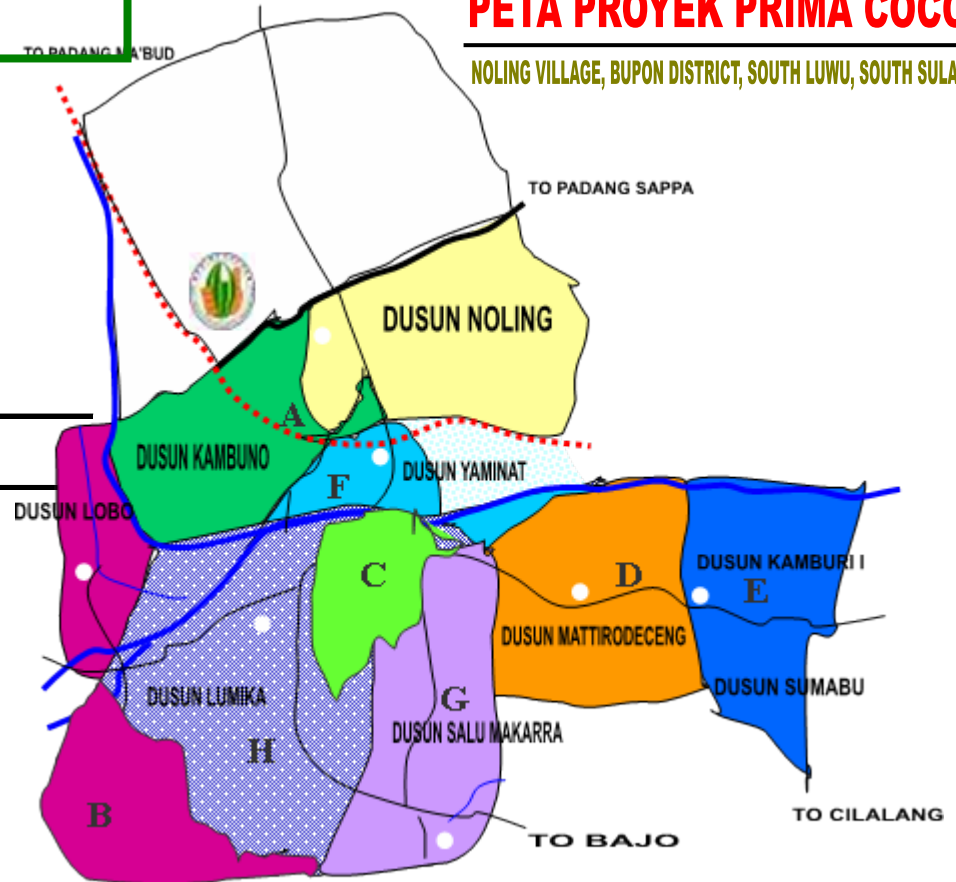
**(3) How can smallholder cocoa production in Sulawesi improve?**

# Factors Limiting Cocoa Production

Problem	Sample Average
<b>CPB</b>	<b>56%</b>
Old Trees	16%
Other	10%
Black Pod	7%
Bad Soil	7%
Stem Canker	3%

## MAP OF PRIMA COCOA PROJECT PETA PROYEK PRIMA COCOA

NOLING VILLAGE, BUPON DISTRICT, SOUTH LUWU, SOUTH SULAWESI

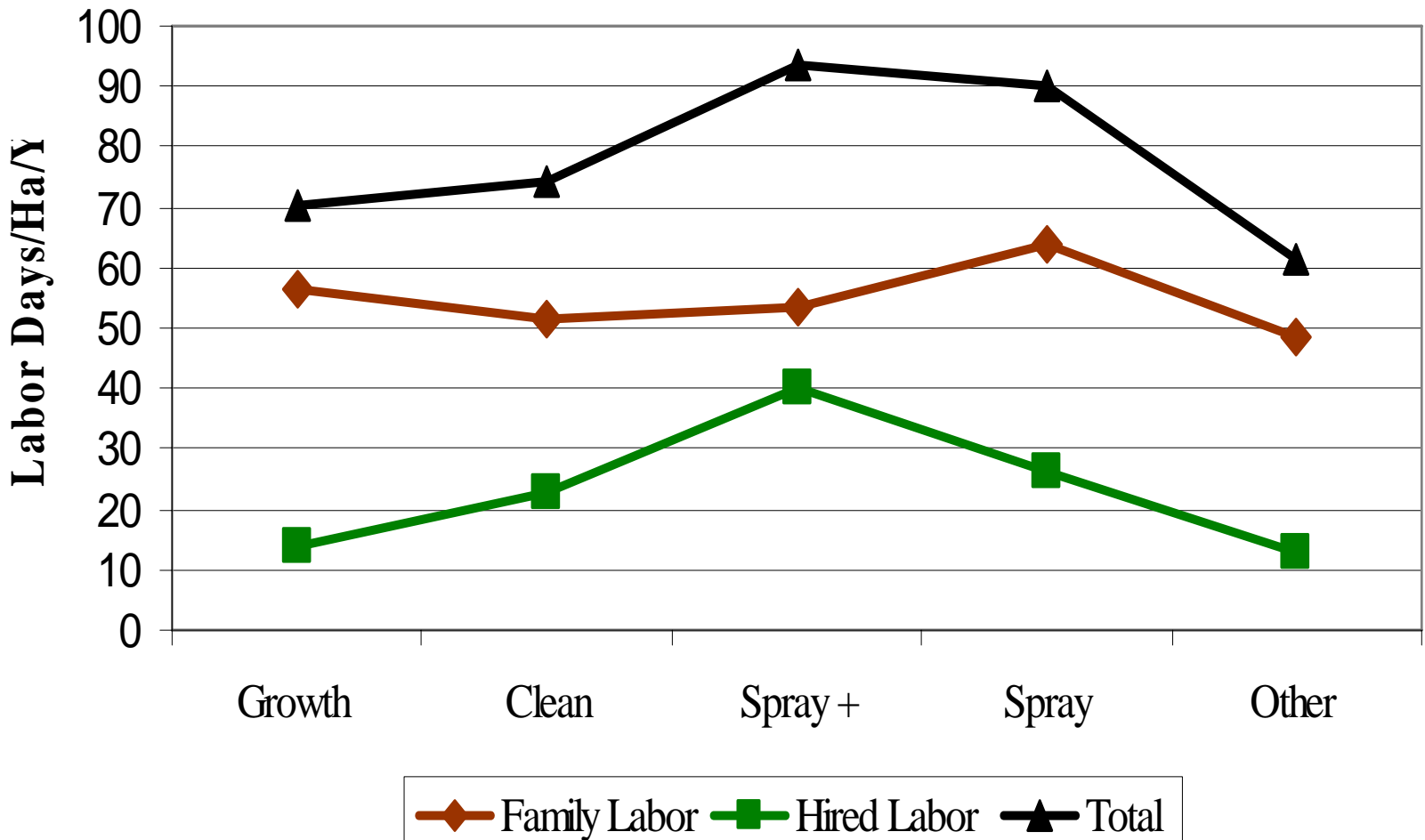


# Interventions and Adoption Patterns



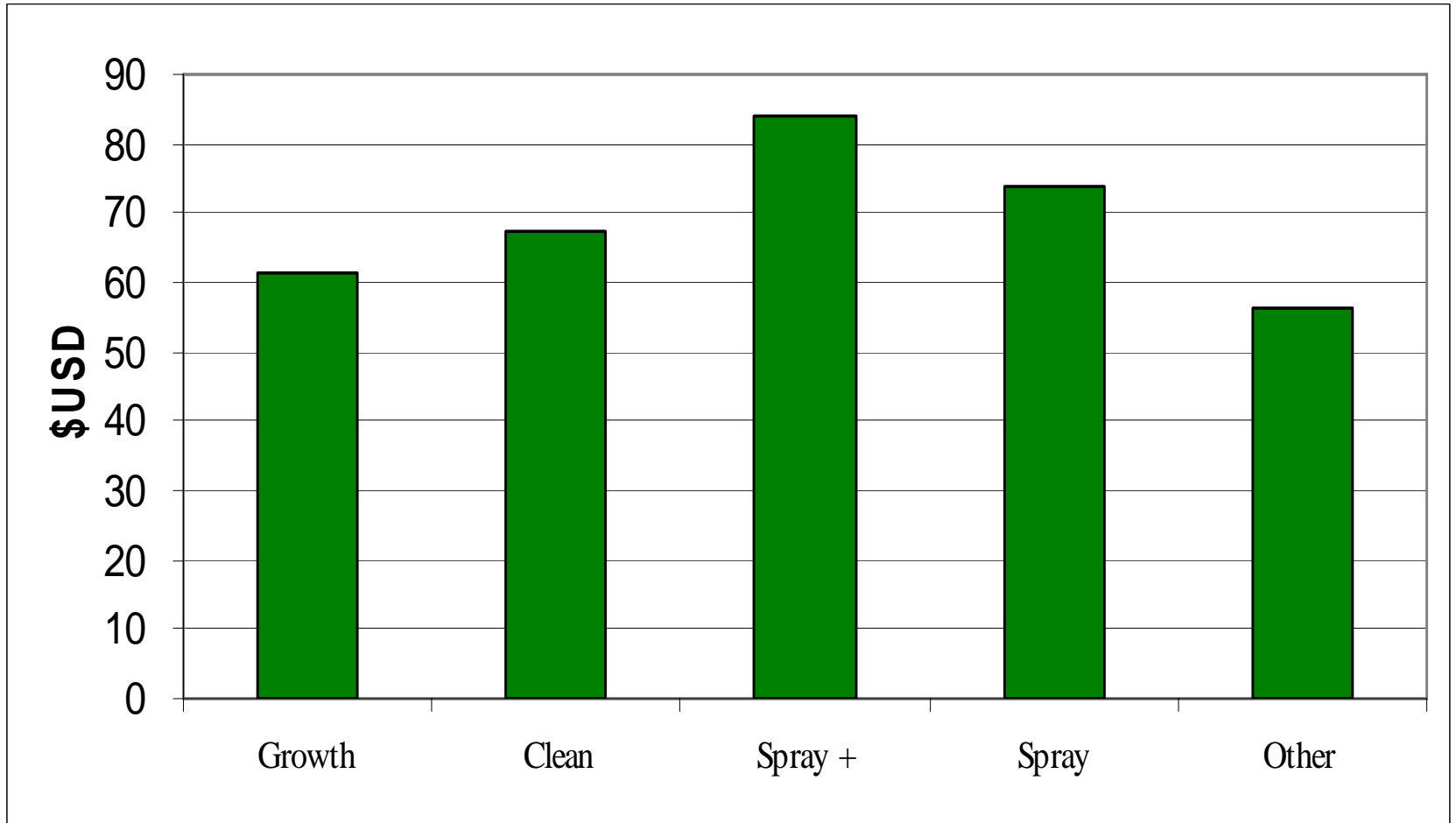
<b>Techniques</b>	<b>Adoption Rate (%)</b>	<b>Reported Level of Success (%)</b>	<b>Abandonment Rate (%)</b>
<b>Insecticide</b>	<b>86%</b>	<b>99%</b>	<b>19%</b>
<b>Sleeving</b>	<b>0.3%</b>	<b>100%</b>	<b>100%</b>
<b>Filling-in</b>	<b>24%</b>	<b>86%</b>	<b>40%</b>
<b>Black Ant</b>	<b>1%</b>	<b>100%</b>	<b>27%</b>
<b>Grafting</b>	<b>10%</b>	<b>90%</b>	<b>34%</b>
<b>PSPSP</b>	<b>2%</b>	<b>94%</b>	<b>24%</b>
<b>GFP</b>	<b>29%</b>	<b>100%</b>	<b>29%</b>
<b>Pruning</b>	<b>56%</b>	<b>100%</b>	<b>19%</b>
<b>Fertilizing</b>	<b>50%</b>	<b>100%</b>	<b>43%</b>
<b>Sanitation</b>	<b>10%</b>	<b>96%</b>	<b>35%</b>
<b>Frequent Harvesting</b>	<b>4%</b>	<b>100%</b>	<b>12%</b>

# Labor Requirements



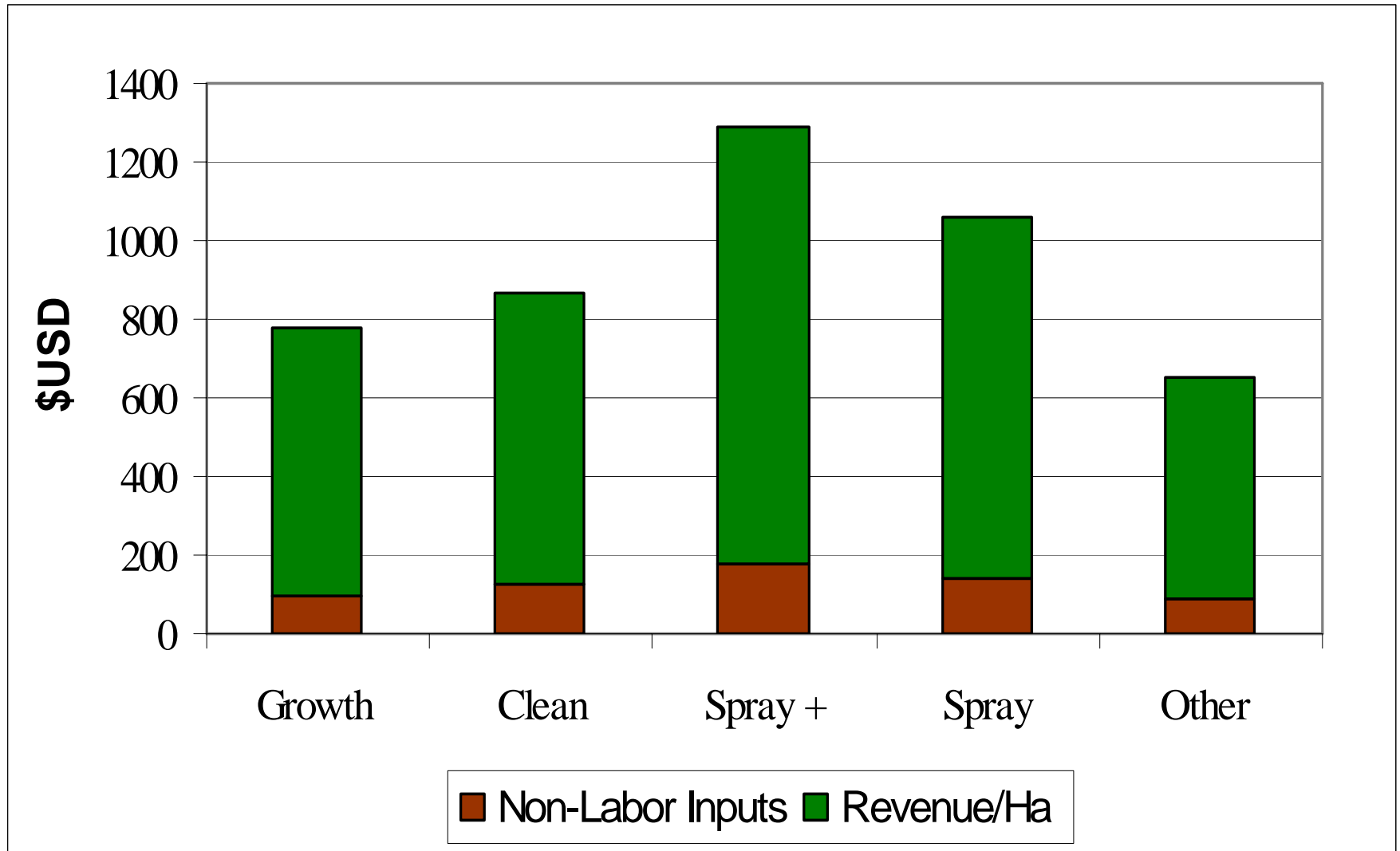


# Physical Input Expenditures



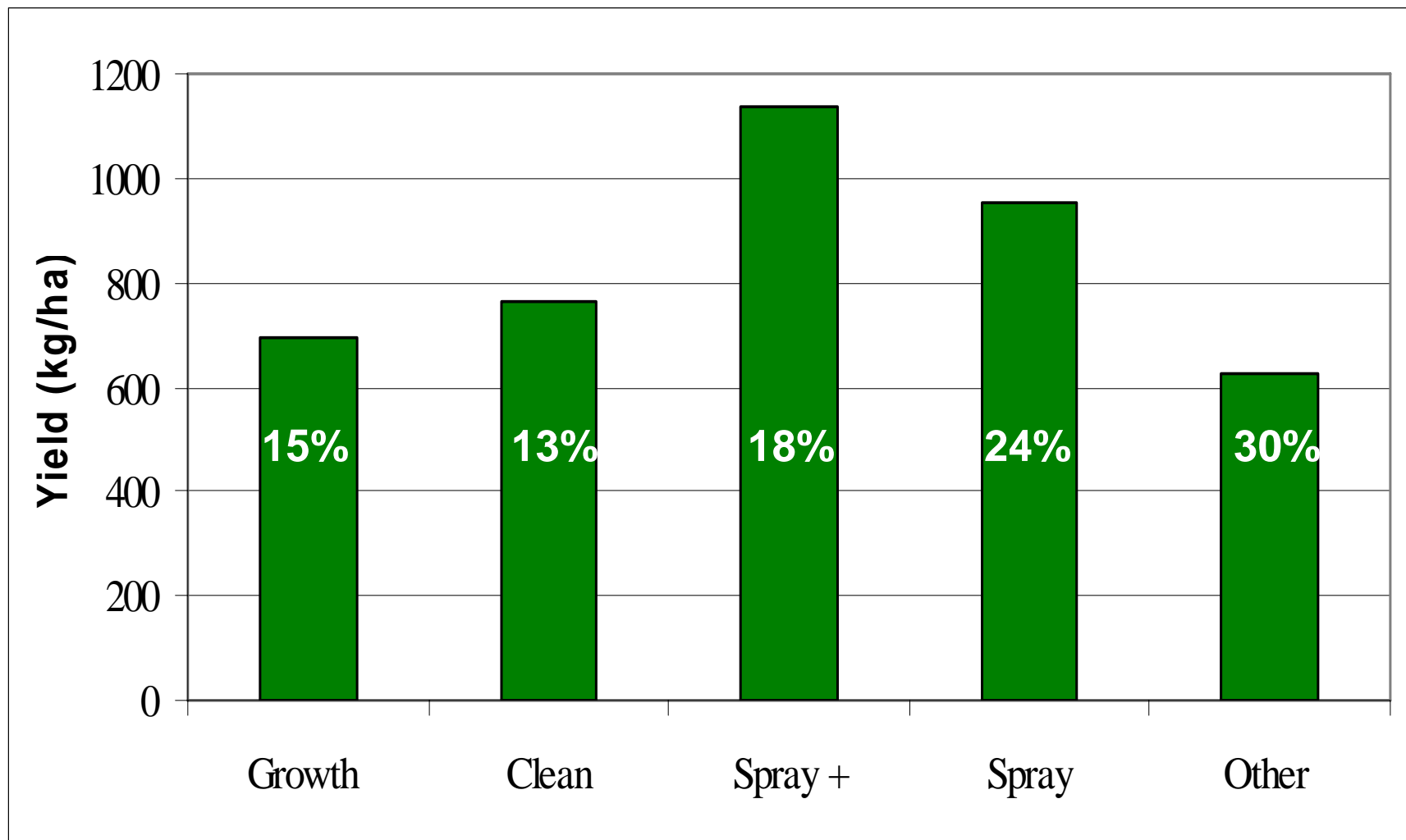


# Revenues and Costs





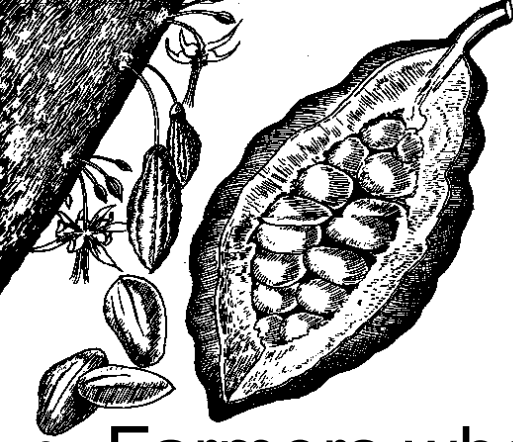
# Cocoa yields and adoption rates



# Results



- **Response to CPB is non-growth oriented**
- **Response to old trees is growth-oriented**
- **Owning agricultural tools aid in adoption of technologies that promote a clean and sanitized farm**
- **Farmers age and education are not significant in explaining observed outcomes**
- **Farmer Field School sessions are most helpful in promoting technologies that lend to growth (i.e. side grafting, tree rehabilitation/regeneration, pruning, etc.)**
- **Strong block effects**



# Lessons learned

- Farmers who are responding seem to be doing the “right thing”
- The most intensive technology responses yield the highest profits but require the most inputs and knowledge
- Target farmers who are in the “other” category (30%)
- Use successful farmers as an example to teach & improve conditions elsewhere
- Farmer training, contact, access to tools, inputs, and credit are important

# Questions and Comments



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