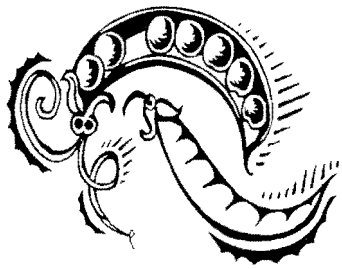
WORKSHEETS



PART I: COSTS AND BENEFITS of FRESH HANDLING PRACTICES

Comparison of estimated costs and expected benefits related to adopting postharvest technology for fresh handling and marketing.

If you need more facts to fill out any worksheet, it is recommended that you select one specific commodity that you produce, and actually use the new practice on one row of vegetables or on a small group of trees for one season or any suitable period of time. During this time collect information on yields, losses, grades of produce harvested, costs of labor, materials and equipment, and power requirements for your own operation in comparison to your current practice. Some of your expenses will not be affected at all, while others will be added or no longer be necessary when you change practices.

INSTRUCTIONS

Make copies of these blank worksheets and use a complete set for each commodity you produce and market. If you want to compare various postharvest technologies you may need to use several copies of the worksheets for each commodity.

Overhead costs should be reported by month, by season or by year, depending upon how you generally allocate costs of operation. The idea is to be able to determine how much of your overhead costs can be assigned to the commodity of interest. For example, if you produce and handle only one commodity, it will take on 100% of your overhead. If you produce and market equal amounts of 3 commodities, each can be assigned 1/3 of the total overhead.

Most of the costs for the topics listed in Worksheet 3 will have several components including capital costs (equipment or facilities), and recurring costs (supplies, labor and purchased power or fuel for running equipment).

Worksheet 1: Collect some basic information

Commodity _____
Variety _____

1. Overhead Costs:

Salaries (managers, office staff, etc.)	Rs_____
Office expenses and supplies	Rs_____
Maintenance, parts and repairs	Rs_____
Utilities (gas, electric)	Rs_____
Communications (Telephone, FAX, e-mail)	Rs
Rent	Rs_____
Other	Rs_____
Total =	Rs_____

Overhead costs affiliated with this commodity
(base on the percent this commodity compared to your total production)

_____% Rs_____*

2. General information related to each practice:

Base upon previous experience with the commodity, your CSAM results (see Appendix A) or estimates provided by other producers/shippers, produce buyers, published literature on postharvest technology, cost/benefit examples provided in each chapter of this workbook or information available from your local Extension Service. Many recommended PHTs will reduce losses by minimizing decay, mechanical damage, and weight loss.

Current Practice (describe)_____

New Practice (describe)_____

	Current practice	New practice
Expected yields	_____kg	_____kg
Estimated physical losses		
amount of culls during pre-sorting	_____%	_____%
losses due to pests	_____%	_____%
losses due to mechanical damage	_____%	_____%
weight loss during handling/storage	_____%	_____%
Sum of losses	_____kg	_____kg
How much will you have to sell? (Expected yields - Estimated sum of losses)	_____kg	_____kg
Expected grades (should add up to the amount above)		
highest	_____kg	_____kg
second	_____kg	_____kg
lowest	_____kg	_____kg

3. Market Prices (obtain from your buyers or past history):
Expected price per kg (wholesale)

highest grade_____ Rs_____

second grade_____ Rs_____

lowest grade_____ Rs_____

Expected price per kg (retail)

highest grade_____ Rs_____

second grade_____ Rs_____

lowest grade_____ Rs_____

Worksheet 2: Comparison of Direct Costs

Does one practice cost more than the other for production, preparation for market, postharvest handling, materials, power, equipment, storage, transport, marketing, etc.? Calculations should be based on expected yield, postharvest losses, hourly labor costs, and expected volumes to be handled. Specific details for recommended practices are included in the examples found at the end of each chapter of the book, with those costs that are expected to change listed individually under each category. If you find there are additional costs associated with your operation, please add these to the list.

Current Practice _____

New Practice _____

	Current practice	**New practice**
Pre-Harvest		
seeds or planting materials	Rs_____	Rs_____
land preparation/planting	Rs_____	Rs_____
cultivation (pruning, thinning, mulching, etc)	Rs_____	Rs_____
preharvest treatments (pesticides, etc.)	Rs_____	Rs_____
irrigation	Rs_____	Rs_____
fertilization	Rs_____	Rs_____
other_____	Rs_____	Rs_____

	Current practice	New practice
Harvest and Market Preparation		
labor and equipment for harvesting	Rs_____	Rs_____
field packing	Rs_____	Rs_____
curing	Rs_____	Rs_____
other_____	Rs_____	Rs_____
Packinghouse Operations		
pre-sorting	Rs_____	Rs_____
washing/cleaning	Rs_____	Rs_____
sizing/grading	Rs_____	Rs_____
waxing	Rs_____	Rs_____
pest management	Rs_____	Rs_____
sanitation	Rs_____	Rs_____
packaging materials	Rs_____	Rs_____
packing	Rs_____	Rs_____
other_____	Rs_____	Rs_____
Temperature/RH Management		
pre-cooling	Rs_____	Rs_____
cooling	Rs_____	Rs_____
storage	Rs_____	Rs_____
other_____	Rs_____	Rs_____
Transportation		
vehicles	Rs_____	Rs_____
fuel	Rs_____	Rs_____
cooling	Rs_____	Rs_____
other_____	Rs_____	Rs_____

	Current practice	New practice
Destination Handling		
ripening	Rs_____	Rs_____
re-sorting	Rs	Rs_____
display	Rs_____	Rs_____
other_____	Rs_____	Rs_____
Other Costs		
marketing (fees, sales labor)	Rs_____	Rs_____
promotional activities	Rs_____	Rs_____
food safety program	Rs_____	Rs_____
other_____	Rs_____	Rs_____
Total Direct Costs	Rs_____	Rs_____
*Overhead Costs for this commodity	Rs_____	Rs_____
Total Costs	Rs_____	Rs_____
Total costs per kg of produce for sale	Rs_____	Rs_____

Worksheet 3: Comparison of Benefits

Base upon expected yields and quality, amount of produce available for sale at various grades, and expected prices per kg collected in Worksheet 1. (kgs of produce at each grade x price/kg = expected sales at each grade). Do the calculations for either wholesale or retail prices or a combination if you will sell both ways.

Current Practice _____

New Practice _____

	Current practice	**New practice**
1. Expected sales (wholesale)		
highest grade	Rs	Rs
second grade	Rs_____	Rs_____
lowest grade	Rs_____	Rs_____
Subtotal Sales (wholesale)	Rs_____	Rs_____
2. Expected sales (retail)		
highest grade	Rs_____	Rs_____
second grade	Rs_____	Rs_____
lowest grade	Rs_____	Rs_____
Subtotal Sales (retail)	Rs_____	Rs_____
3. Total Expected Sales	Rs_____	Rs_____

4. Comparative Advantage

(Total Expected Sales - Total Costs = Comparative Advantage)
refer to the total costs calculated for each practice in Worksheet 2

Current practice Rs_____ **- Rs**_____ **= Rs**_____ (a)

New practice Rs_____ **- Rs**_____ **= Rs**_____ (b)

	Current practice	New practice
Which practice is most profitable, and can provide the best economic opportunity?	Rs_____ (a)	Rs_____ (b)

Worksheet 4: Recovery of Invested Capital (ROIC)

If the new postharvest technology costs more than your current practice, how long will it take to pay for your investment in the new practice? An excellent return on investment would be a recovery time of less than one month, while a slower return may require an entire season (3 to 5 months). Any longer recovery period usually would not be considered a good return on investment.

Current Practice _____

New Practice _____

1. Difference in total direct costs for new practice = Rs_____
(Actual capital outlay for new equipment and facilities, plus power costs, supplies and labor requirements for the new practice when compared to costs for the current practice over the entire season: see Worksheet 2)

2. Interest rate (if capital is borrowed) = _____% per annum; or _____% per month
Cost of capital at three months = Rs _____
Cost of capital at six months = Rs _____

3. Difference in sales using the new practice = Rs_____per month
(Subtract total expected sales using the current practice from total expected sales using the new practice: see Worksheet 3; divide the difference by number of months of sales)

4. Calculate ROIC in months to recover invested capital:

(Difference in total direct costs + any interest paid)
_____ ÷ Months to pay for investment.

Difference in Sales per month

(Rs_____ + Rs_____)
_____ = _____ Months
Rs _____ per month