

Appendices

Appendix 1. t-Test of two sample for means

Variable	P1 and P2	P1 and P3	P2 and P3
Amount of water irrigated/time	ns	*	ns
Number of irrigation	**	**	**
Total amount of water irrigated/year	**	**	*

Note: ns = non-significance

* = significance at 5 percent level

** = significance at 1 percent level

Appendix 2. t-Test of two sample for means

Variable	P1 and P2	P1 and P3	P2 and P3
Amount of N application/year	**	**	**
Amount of P ₂ O ₅ application/year	**	**	**
Amount of K ₂ O application/year	**	**	**
Amount of FYM application /year	ns	ns	ns
Amount of biofertilizers application/year	ns	**	**
Amount of coffee pulp application/year	**	**	**

Note: ns = non-significance

* = significance at 5 percent level

** = significance at 1 percent level

Appendix 3. t-Test of two sample for means

Variable	P1 and P2	P1 and P3	P2 and P3
Amount of insecticide use/year	**	**	**
Number of insecticide spray/year	**	**	*
Number of pruning/year	ns	**	ns
Number of labor need/year	**	**	**
Gross margin/year	**	**	**

Note: ns = non-significance

* = significance at 5 percent level

** = significance at 1 percent level

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Appendix 4. Five-year mean coffee yield (1998-2002) and four-year average durian and black pepper yields (1999-2002) of different coffee based systems

Farm number	P ₁		P ₂		P ₃	
	Coffee	Coffee	Durian	Coffee	Pepper	
1	16,034.0	15,473.0	3,656.0	12,162.0	929.5	
2	16,115.8	13,701.8	3,482.0	12,321.5	925.4	
3	15,243.0	13,511.0	3,502.3	14,667.0	920.6	
4	15,109.0	11,809.0	3,545.0	11,248.3	912.9	
5	14,636.8	13,859.8	3,582.0	13,088.0	924.0	
6	15,892.0	13,611.0	3,530.5	13,925.8	914.7	
7	17,321.0	12,064.0	3,616.5	12,491.5	931.5	
8	17,632.0	13,536.5	3,553.3	11,984.0	906.7	
9	14,242.8	13,847.0	3,689.5	13,136.8	890.1	
10	15,002.0	13,536.3	3,468.3	10,498.3	898.9	
11	17,546.0	15,646.3	3,729.5	12,323.0	901.5	
12	15,023.0	11,885.5	3,592.8	11,411.0	924.3	
13	14,376.0	13,561.0	3,591.8	11,361.8	918.9	
14	17,583.6	13,870.3	3,741.3	11,360.8	920.5	
15	16,124.3	15,689.0	3,574.3	12,347.0	919.6	
16	15,072.3	12,828.0	3,654.5	12,403.8	917.4	
17	17,093.0	12,706.5	3,637.3	12,210.3	898.2	
18	16,872.0	15,634.0	3,665.3	12,501.5	919.3	

Appendix 4. Five-year mean coffee yield (1998-2002) and four-year average durian and black pepper yields (1999-2002) of different coffee based systems (continued)

Farm number	P ₁		P ₂	P ₃	
	Coffee	Coffee	Durian	Coffee	Pepper
19	15,405.0	13,341.0	3,610.5	12,510.3	905.2
20	15,624.0	14,582.0	3,585.8	14,041.5	910.8
21	16,837.0	12,759.0	3,659.3	12,293.5	913.6
22	16,983.5	12,104.0	3,547.5	12,631.3	921.9
23	17,211.0	11,643.3	3,613.8	12,273.0	911.9
24	16,856.0	11,067.0	3,451.5	15,062.3	922.1
25	14,540.3	15,275.0	3,705.3	11,319.5	897.9
26	16,375.8	15,516.8	3,706.8	12,446.5	923.9
27	15,767.0	13,559.3	3,615.3	11,270.0	931.2
28	17,568.5	14,894.8	3,616.0	11,119.8	939.7
29	16,182.0	13,074.0	3,686.0	14,876.3	915.5
30	16,656.3	15,735.0	3,585.8	11,314.8	920.9
31	15,841.5	14,329.0	3,576.8	11,591.8	925.0
32	16,098.0	13,738.5	3,704.8	13,459.0	909.0
33	16,332.0	11,669.8	3,636.0	11,352.3	904.6
34	15,562.5	13,389.3	3,646.0	11,178.0	930.7
35	16,879.8	12,248.8	3,559.3	12,219.3	908.4
36	15,368.0	15,047.0	3,717.0	12,321.8	915.1
37	16,589.0	12,364.0	3,600.8	12,136.5	926.6
38	17,110.0	12,178.0	3,372.5	11,982.3	912.7
39	15,497.8	14,676.0	3,509.5	14,148.5	898.4
40	17,151.3	13,549.3	3,582.8	12,471.8	917.1
41	16,247.3	13,687.0	3,667.0	11,952.5	707.3
42	15,333.0	14,641.0	3,668.0	12,555.5	925.2
43	14,551.8	13,497.0	3,613.5	10,270.3	910.8
44	17,215.8	12,085.8	3,709.3	12,209.8	911.5
45	14,628.0	14,460.3	3,698.5	13,160.5	930.1
46	16,456.0	14,765.0	3,560.0	12,474.5	921.6

Appendix 5. Assessing performance efficiency of each system (USD/ha)

	Item	P ₁	P ₂	P ₃
A	Return			
	Coffee	1,898.2	1,607.9	1,457.4
	Durian		828.3	
	Black pepper			1,195.8
	Total gross return	1,898.2	2,436.2	2,653.2
B	Total cost = (B₁ + B₂ + B₃)			
B₁	Variable costs	518.3	479.7	490.3
	Fertilizers	273.1	250.2	248.1
	Pesticides	13.6	8.5	5.2
	Water cost	133.2	116.1	105.9
	Hired labor	98.4	104.9	131.1
B₂	Fixed cost	295.1	295.1	295.1
	Machine depreciation	98.4	98.4	98.4
	Other equipment depreciation	131.1	131.1	131.1
	Land-use tax	65.6	65.6	65.6
B₃	Family labor cost	313.4	320.0	360.6
	Fertilization	26.2	31.5	39.3
	Pesticide application	18.4	13.1	13.1
	Irrigation	52.3	39.3	32.8
	Weeding and maintaining basins	52.3	52.5	52.5
	Pruning	65.6	78.7	91.8
	Harvesting	98.4	104.9	131.1
	Sum of costs = (B₁ + B₂ + B₃)	1,126.8	1,094.8	1,146.0
C	Gross margin (A - B ₁)	1,379.9	1,956.5	2,162.9
D	Farm net return (C - B ₂)	1,084.8	1,661.4	1,867.8
E	Family farm sustainable income (A - B)*	771.4	1,341.4	1,507.2

Source: Survey, 2002.

* Excluding family labor cost

Note: US\$ 1 = VND 15,250 in 2002

Curriculum Vitae

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