PROJECT ALA-97/68

UPLAND DEVELOPMENT PROGRAMME IN SOUTHERN MINDANAO (UDP)

CROP REQUIREMENT TABLES

MAY 2000

Jef EMBRECHTS

1.1 Abaca

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	25-29	25-23	23-20	<20
Total annual rainfall (mm)	2000-2900	2000-1500	1500-700	<700
Rainfall distribution (No. of dry months)	0-2	2-4	4-6	>6
Physiography (field observations)				
Slope gradient (%)	0-12	12-25	25-50	>50
Erosion classes	E0, E1, E2	E3-1	E3-2	E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium	Heavy	Light	
PH	7.0-5.6	5.6-5.2	5.2-4.8	<4.8
Organic carbon (%)	>1.5	1.5-0.8	<0.8	

Good smallholder yield:

1.2 Avocado

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	26-18	18-15	15-10	
Total annual rainfall (mm)	2000-1500	>2000 and <1500		
Rainfall distribution (No. of dry months)	1-3	<1	3-5	>5
Physiography (field observations)				
Slope gradient (%)	0-12	12-25	25-50	>50
Erosion classes	E0, E1, E2	E3-1	E3-2	E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium	Light	Heavy	
PH	5.0-6.5	5.0-4.6	4.6-4.3	<4.3
Organic carbon (%)	>1.2	1.2-0.8	<0.8	

Good commercial yield:
Good smallholder yield:

1.3 Banana (Sweet and Cooking)

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	>18	18-16	16-14	<14
Total annual rainfall (mm)	>1500	<1500		
Rainfall distribution (No. of dry months)	0-3	3-5	5-8	>8
Physiography (field observations)				
Slope gradient (%)	0-12	12-25	25-50	>50
Erosion classes	E0, E1, E2	E3-1	E3-2	E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium	Heavy		Light
PH	7.0-5.6	5.6-5.2	5.2-4.5	<4.5
Organic carbon (%)	>1.5	1.5-0.8	<0.8	

Good commercial yield: 30-35 tons/ha

Good smallholder yield: 15 to 25 tons/ha for an average of 1500 trees/ha = 1 tree every 7 m. distance = monocrop plantation). Divide accordingly and decrease by 20 % for mixed plantations with any kind of shade).

1.4 Beans (white, green)

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	18-24	24-27	>27	
Total annual rainfall (mm)	1500-2000	2000-2500	>2500	
Rainfall distribution (No. of dry months)				
Physiography (field observations)				
Slope gradient (%)	0-8	8-18	18-30	>30
Erosion classes	EO,E1	E2	E3-1	E3-2, E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium	Heavy	Light	
PH	6.5-5.6	5.6-5.4	5.4-5.2	<5.2
Organic carbon (%)	>1.2	1.2-0.8	<0.8	

Good smallholder yield (dry beans): 1.0 to 1.5 tons/ha

1.5 Cabbage

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	18-24	>24		
Total annual rainfall (mm)	1500-1000	<1000		
Rainfall distribution (No. of dry months)				
Physiography (field observations)				
Slope gradient (%)	0-8	8-18	18-30	>30
Erosion classes	EO,E1	E2	E3-1	E3-2, E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium, Heavy	Light		
PH	6.8-6.0	6.0-5.8	5.8-5.5	<5.5
Organic carbon (%)	>0.8	>0.8		

Good smallholder yield: 10 to 20 tons/ha

1.6 Cacao

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	23-26	22-23	22-21	<21
Total annual rainfall (mm)	2500-1500	<1500		
Rainfall distribution (No. of dry months)	0-2	2-4	4-5	>5
Physiography (field observations)				
Slope gradient (%)	0-12	12-25	25-50	>50
Erosion classes	E0, E1, E2	E3-1	E3-2	E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium	Heavy	Light	
PH	6.0-7.0	6.0-5.5	5.5-5.0	<5.0
Organic carbon (%)	>1.5	0.8-1.5	<0.8	

Good commercial yield (dry beans): 1.5 to 2.5 tons/ha
Smallholder yield (dry beans): 0.8 to 1.5 tons/ha

1.7 Camote (Sweet potato)

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	22-32	22-20	20-16	<16
Total annual rainfall (mm)	750-1500	1500-1700	>1700	
Rainfall distribution (No. of dry months)				
Physiography (field observations)				
Slope gradient (%)	0-8	8-18	18-30	>30
Erosion classes	EO,E1	E2	E3-1	E3-2, E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium, Heavy	Light		
PH	5.2-7.2	5.2-4.8	4.8-4.5	<4.5
Organic carbon (%)	>2	2-1	<1	

Good smallholder yield: 5-10 tons of tubers/ha

1.8 Carrots

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	22-16	22-28	>28	
Total annual rainfall (mm)	1000-1100	1100-1700	1700-2500	>2500
Rainfall distribution (No. of dry months)				
Physiography (field observations)				
Slope gradient (%)	0-8	8-18	18-30	>30
Erosion classes	EO,E1	E2	E3-1	E3-2, E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium	Light	Heavy	
PH	6.3-6.0	6.0-5.7	5.7-5.2	<5.2
Organic carbon (%)	>1.2	1.2-0.8	<0.8	

Good smallholder yield: 18 to 20 tons/ha

1.9 Cashew

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	>22	22-20	<20	
Total annual rainfall (mm)	1800-3000	1200-800	800-500	<500
Rainfall distribution (No. of dry months)	0-4	4-5	5-6	>6
Physiography (field observations)				
Slope gradient (%)	0-12	12-25	25-50	>50
Erosion classes	E0, E1, E2	E3-1	E3-2	E4
Soil characteristics (field observations and laboratory results)				
Texture	Heavy, Medium	Light	Heavy	
PH	7.0-5.2	5.2-4.8	4.8-4.5	<4.5
Organic carbon (%)	>0.8	<0.8		

Good smallholder yield: 2 tons/ha

1.10Cassava

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	18-30	18-16	16-12	<12
Total annual rainfall (mm)	1000-2400	1000-600	600-500	<500
Rainfall distribution (No. of dry months)	1-5	<1		
Physiography (field observations)				
Slope gradient (%)	0-8	8-18	18-30	>30
Erosion classes	EO,E1	E2	E3-1	E3-2, E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium	Heavy	Light	
PH	5.2-7.0	5.2-4.8	4.8-4.5	<4.5
Organic carbon (%)	>0.8	<0.8		

Good smallholder yield: 5-15 tons/ha

1.11Citrus spp.

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	26-19	19-16	<16	
Total annual rainfall (mm)	3000-1200	1200-1000	<800	
Rainfall distribution (No. of dry months)				
Physiography (field observations)				
Slope gradient (%)	0-12	12-25	25-50	>50
Erosion classes	E0, E1, E2	E3-1	E3-2	E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium	Light	Heavy	
PH	6.5-5.5	5.5-5.2	5.2-5.0	<5.0
Organic carbon (%)	>0.8	<0.8		

Good smallholder yield: 20 to 30 tons/ha

1.12Coconut

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	32-24	24-22	22-20	<20
Total annual rainfall (mm)	>1500	1500-1000	<1000	
Rainfall distribution (No. of dry months)	0-2	2-3	3-4	>4
Physiography (field observations)				
Slope gradient (%)	0-12	12-25	25-50	>50
Erosion classes	E0, E1, E2	E3-1	E3-2	E4
Soil characteristics (field observations and laboratory results)				
Texture	Heavy, Medium	Light		
PH	5.2-7.5	5.2-4.8	4.8-4.5	<4.5
Organic carbon (%)	>0.8	<0.8		

Good smallholder yield: 3.0 to 3.7 tons of copra/ha

1.13Coffee (Arabica)

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	18-22	22-24	24-26	>26

Total annual rainfall (mm)	1400-1800	1800-2000	>2000	
Rainfall distribution (No. of dry months)	1-4	0-5	5-6	>6
Physiography (field observations)				
Slope gradient (%)	0-12	12-25	25-50	>50
Erosion classes	E0, E1, E2, E3-1	E3-2		E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium, Heavy		Light	
PH	6.6-5.6	5.6-5.4	5.4-5.2	<5.2
Organic carbon (%)	>1.5	1.5-0.8	>0.8	

Good commercial yield (clean green hulled beans): 1.5 to 3.0 tons/ha
Good smallholder yield (clean green hulled beans): 0.5 to 1.2 tons/ha

1.14Coffee (Robusta)

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	>22	22-20	20-18	<18
Total annual rainfall (mm)	2500-1500	>2500	<1500	
Rainfall distribution (No. of dry months)	1-2	2-3	3-4	>4
Physiography (field observations)				
Slope gradient (%)	0-12	12-25	25-50	>50
Erosion classes	E0, E1, E2	E3-1	E3-2	E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium, Heavy		Light	
PH	6.0-5.3	5.3-5.0	5.0-4.5	<4.5
Organic carbon (%)	>1.5	1.5-0.8	<0.8	

Good commercial yield (clean green-hulled beans): 1.0 to 2.0 tons/ha
Good smallholder yield (clean green-hulled beans): 0.5 to 1.2 tons/ha

1.15Corn (Maize)

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general map and graphic)				
Mean air temperature (°C)	30-18	18-16	15-14	<14
Total annual rainfall (mm)	2500-1500	>2500 and 1500-1200	1200-900	<900
Rainfall distribution (No. of dry months)	3-4	4-6	4-8	8-9
Physiography (field observations)				
Slope gradient (%)	0-8	8-18	18-30	>30
Erosion classes	EO,E1	E2	E3-1	E3-2, E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium	Heavy	Light	
PH	7-5.8	5.5-5.8	5.5-5.2	<5.2
Organic carbon (%)	>1.2	1.2-0.8	<0.8	

Good commercial yield: 6.0 to 9.0 tons of grain/ha
Smallholder yield: 0.5 to 1.5 tons of grain/ha

1.16Durian

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				

Mean air temperature (°C)	23-30	12-23	<12	
Total annual rainfall (mm)	1500-2000	2000-3500 1500-1200	<1200	
Rainfall distribution (No. of dry months)	0-1	1-2	2-3	>3
Physiography (field observations)				
Slope gradient (%)	0-12	12-35	25-50	>50
Erosion classes	E0, E1, E2	E3-1	E3-2	E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium	Light	Heavy	
PH	5.0-6.5	5.0-4.3	<4.3	
Organic carbon (%)	>1.2	1.2-0.8	<0.8	

Good smallholder yield: 10-18 tons/ha

1.17Guava

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	20-28	20-15	<15	
Total annual rainfall (mm)	>1000	1000-500	<500	
Rainfall distribution (No. of dry months)				
Physiography (field observations)				
Slope gradient (%)	0-12	12-25	25-50	>50
Erosion classes	E0, E1, E2	E3-1	E3-2	E4
Soil characteristics (field observations and laboratory results)				
Texture	Heavy	Medium	Light	
PH	7.0-5.5	5.5-5.2	5.2-4.5	<4.5
Organic carbon (%)	>1.2	1.2-0.8	<0.8	

Good smallholder yield: 30-40 kg/tree, 150 kg if grafted

1.18Jackfruit

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	20-30	16-20	<16	
Total annual rainfall (mm)	2000-3000	2000-700	<700	
Rainfall distribution (No. of dry months)	0-2	2-3	>3	
Physiography (field observations)				
Slope gradient (%)	0-12	12-25	25-50	>50
Erosion classes	E0, E1, E2	E3-1	E3-2	E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium	Heavy Light		
PH	6.0-7.0	6.0-4.3	<4.3	
Organic carbon (%)	>1.2	0.8-1.2	<0.8	

Good smallholder yield:

1.19Lanzones

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	20-35	20-12	<12	
Total annual rainfall (mm)	1400-2200	1400-1000	<1000	

			>3000	
Rainfall distribution (No. of dry months)	0-2	2-3	>3	
Physiography (field observations)				
Slope gradient (%)	0-12	12-25	25-50	>50
Erosion classes	E0, E1, E2	E3-1	E3-2	E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium	Heavy	Light	
PH	6.0-7.0	6-5.0	<5.0	
Organic carbon (%)	>1.2	0.8-1.2	<1.2	

Good smallholder yield:

1.20Mango

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	22-28	22-18	18-15	<15
Total annual rainfall (mm)	>1000	1000-500	<500	
Rainfall distribution (No. of dry months)	3-6	6-7	6-8	>8
Physiography (field observations)				
Slope gradient (%)	0-12	12-25	25-50	>50
Erosion classes	E0, E1, E2	E3-1	E3-2	E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium, Heavy	Light		
PH	5.5-7.8	5.5-5.0	5.0-4.5	<4.5
Organic carbon (%)	>1.2	1.2-0.8	<0.8	

Good smallholder yield:

1.21Mangosteen

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	20-30	15-20	<15	
Total annual rainfall (mm)	1600-2000	1100-1600 2000-2800	>2800 <1100	
Rainfall distribution (No. of dry months)	0-1	1-2	2-3	>3
Physiography (field observations)				
Slope gradient (%)	0-12	12-25	25-50	>50
Erosion classes	E0, E1, E2	E3-1	E3-2	E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium, Heavy	Light	Light	
PH	5.0-6.0	5.0-4.3	<4.3 6.0-7.0	
Organic carbon (%)	>1.2	0.8-1.2	<0.8	

Good smallholder yield: 200 to 500 fruits per tree

1.22Mung bean

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	21-36	21-8	<8	
Total annual rainfall (mm)	650-900	900-1250	>1250	
Rainfall distribution (No. of dry months)				

Physiography (field observations)				
Slope gradient (%)	0-8	8-18	18-30	>30
Erosion classes	EO,E1	E2	E3-1	E3-2, E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium	Light	Heavy	
PH	5.5-6.2	5.5-4.3	<4.3	
Organic carbon (%)	>1.2	0.8-1.2	<0.8	

Good smallholder yield: 100-500 kg of dried beans/ha; 200-500 kg of green matter/ha

1.23Onion (bulb)

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	22-16	22-23	23-25	>25
Total annual rainfall (mm)	1200-1500	1500- 4000	>8000	
Rainfall distribution (No. of dry months)				
Physiography (field observations)				
Slope gradient (%)	0-8	8-18	18-30	30-50
Erosion classes	EO,E1	E2	E3-1	E3-2, E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium	Light	Heavy	
PH	6.0-7.2	6.0-5.8	5.8-5.5	<5.5
Organic carbon (%)	>1.2	1.2-0.8	<0.8	

Average farmer yield: 5 to 10 tons/ha

1.24Papaya

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	20-28	20-15	<15	
Total annual rainfall (mm)	1000-2000	1000-800	800-600	<600
Rainfall distribution (No. of dry months)				
Physiography (field observations)				
Slope gradient (%)	0-12	12-25	25-50	>50
Erosion classes	EO,E1, E2	E3-1	E3-2	E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium	Light	Heavy	
PH	6.0-6.6	6.0-5.5	5.5-5.0	<5.5
Organic carbon (%)	>1.2	1.2-0.8	<0.8	

Average farmer yield: 10 tons/ha, 10 kg/tree

1.25Peanut

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	18-30	<18		
Total annual rainfall (mm)	1200-3500	>3500		
Rainfall distribution (No. of dry months)				
Physiography (field observations)				
Slope gradient (%)	0-8	8-18	18-30	>30
Erosion classes	EO,E1	E2	E3-1	E3-2, E4
Soil characteristics (field observations and laboratory results)				

Texture	Medium	Light	Heavy	
PH	6.0-7.5	6.0-5.6	5.6-5.4	<5.4
Organic carbon (%)	>1.2	1.2-0.8	<0.8	

Good smallholder yield: 1.0 to 2.0 tons of unshelled nuts/ha

1.26Pineapple

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	26-20	20-18	18-16	<16
Total annual rainfall (mm)	1500-1000	1500-2000	>2000	
Rainfall distribution (No. of dry months)				
Physiography (field observations)				
Slope gradient (%)	0-12	12-25	25-50	>50
Erosion classes	E0, E1, E2	E3-1	E3-2	E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium	Light	Heavy	
PH	6.5-5.0	5.0-4.3	4.3-4.0	<4.0
Organic carbon (%)	>1.2	1.2-0.8	<0.8	

Good commercial yield: 40 to 48 tons/ha
Smallholder farmer's yield: 12 to 25 tons/ha

1.27Pepper (black)

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	22-35	22-10	<10	
Total annual rainfall (mm)	2500-4000	2500-2000	2000-1500	<1500
Rainfall distribution (No. of dry months)	0-2	2-4	>4	
Physiography (field observations)				
Slope gradient (%)	0-12	12-25	25-50	>50
Erosion classes	E0, E1, E2	E3-1	E3-2	E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium	Heavy	Light	
PH	6.0-7.0	6.0-5.0	<5.0	
Organic carbon (%)	>1.2	0.8-1.2	<0.8	

Good smallholder yield:

1.28Potato (white)

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	13-24	13-10	10-8	<8
Total annual rainfall (mm)	1000-700	700-500	500-350	<350
Rainfall distribution (No. of dry months)				
Physiography (field observations)				
Slope gradient (%)	0-8	8-18	18-30	>30
Erosion classes	EO, E1, E2	E3-1	E3-2	E4
Soil characteristics (field observations and laboratory results)				

Texture	Medium	Light	Heavy	
PH	5.5-7.0	5.6-5.2	5.2-4.8	<4.8
Organic carbon (%)	>1.2	1.2-0.8	<0.8	

Good smallholder yield: 10-15 tons/ha

1.29Rice (dryland)

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	24-30	24-18	18-10	<10
Total annual rainfall (mm)	3500-700	700-450	450-200	<200
Rainfall distribution (No. of dry months)				
Physiography (field observations)				
Slope gradient (%)	0-8	8-18	18-30	>30
Erosion classes	EO,E1, E2	E3-1	E3-2	E4
Soil characteristics (field observations and laboratory results)				
Texture	Heavy	Medium	Light	
PH	5.5-7.5	5.0-5.5	5.0-4.5	<4.5
Organic carbon (%)	>1.5	1.5-0.8	<0.8	

Good smallholder yield: 0.5 to 1.5 ton unhusked grain/ha

1.30Rice (irrigated)

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	24-30	24-18	18-10	<10
Total annual rainfall (mm)				
Rainfall distribution (No. of dry months)				
Physiography (field observations)				
Slope gradient (%)	<1	1-2	2-4	>4
Erosion classes	EO	E1	E1	E3-1, E3-2, E4
Soil characteristics (field observations and laboratory results)				
Texture	Heavy	Medium	Light	
PH	5.5-7.5	5.0-5.5	5.0-4.5	<4.5
Organic carbon (%)	>1.5	1.5-0.8	<0.8	

Good smallholder yield: 4-5 tons unhusked grains/ha

1.31Squash

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	20-30	9-20	<9	
Total annual rainfall (mm)	1000-600	1000-2700	>2700	
Rainfall distribution (No. of dry months)				
Physiography (field observations)				
Slope gradient (%)	0-8	8-18	18-30	>30
Erosion classes	EO,E1	E2	E3-1	E3-2, E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium	Light	Heavy	
PH	5.5-7.5	5.5-5.0	<5.0	
Organic carbon (%)	>1.2	0.8-1.2	<0.8	

Good smallholder yield:

1.32Temperate vegetables

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	22.5-17.5	>22.5		
Total annual rainfall (mm)	1500-2000	>2000		
Rainfall distribution (No. of dry months)				
Physiography (field observations)				
Slope gradient (%)	0-8	8-18	18-30	>30
Erosion classes	EO,E1	E2	E3-1	E3-2, E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium	Light	Heavy	
PH	6.5-6.0	6.0-5.5	5.5-5.0	<5.0
Organic carbon (%)	>1.2	1.2-0.8	<0.8	

Good smallholder yield:

1.33Tomato

Growing condition appreciation	Optimal or near optimal	Moderate	Marginal	Non suitable
Climate (general maps and graphic)				
Mean air temperature (°C)	26-18	18-16	16-13	<13
Total annual rainfall (mm)	1500-2000	2000-2500	>2500	
Rainfall distribution (No. of dry months)				
Physiography (field observations)				
Slope gradient (%)	0-8	8-18	18-30	>30
Erosion classes	EO,E1, E2	E3-1	E3-2	E4
Soil characteristics (field observations and laboratory results)				
Texture	Medium	Light	Heavy	
PH	6.0-7.5	6.0-5.5	5.5-5.0	<5.0
Organic carbon (%)	>1.2	1.2-0.8	<0.8	

Good smallholder yield: 10 to 20 tons/ha