



Microenterprise Investment Solidifies GEMSAF Capacity Building in Oaxaca, Mexico



Figure 1: GEMSAF intern Aurelia Jimenez presents the “Manual de Conservacion de Frutas y Verduras” to the women’s group *Rio Soyolalpam*.

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www.uwsp.edu/cnr/gem/sustainableforestry.htm

Summary: Throughout 2007 GEMSAF and partner institution ITVO built technical capacity in communities of the Sierra Norte de Oaxaca. Training covered greenhouse production, mushroom cultivation, rotational grazing, animal health, agroforestry, and food conservation. This document highlights the training manuals and business plans created by GEMSAF for these topics during 2007 and previews the GEMSAF 2008 workplan to continue technical training, business planning, and create investment opportunities for sustainable microenterprise activities.

Capacity Building

GEMSAF formed an ongoing partnership with the community of San Martin Soyolalpam in 2006 while working in other parts of the Sierra Norte. In the beginning of 2007 GEMSAF in-country coordinator and ITVO graduate Rosalba Luengas completed a “Participatory Rural Appraisal” (PRA) with the community, which led to the development of two working groups: *Rio Soyolalpam*, a women’s agroforestry and home garden fruit and vegetable processing group; and *Union de Productores de San Martin*, a men’s cattle husbandry group.

DIAGNOSTICO PARTICIPATIVO DE SAN MARTIN SOYOLAPAM, COMALTEPEC, OAX.



Elaborado por: Ing. Rosalba Luengas López

San Martín Soyolapam, Comaltepec, Oax. Junio de 2007

Figure 2: Participatory Rural Appraisal: the first step in GEMSAF community building.

Following the PRA, GEMSAF recruited two additional recently graduated ITVO students to conduct capacity building activities with these groups, which resulted in two training manuals: *The Manual of Fruit and Vegetable Conservation*, and *The Manual of Cattle Husbandry*. These manuals incorporate rich practical training into community-adapted management recommendations specifically designed for the resources, capacity, and interests of each community group. ITVO faculty advisor Dr. Ernesto Castaneda also assigned a forestry student to assess the agroforestry systems of Soyolalpam, which were then incorporated into the group training activities. The following figures represent these documents and activities. Please follow links to the entire documents at www.uwsp.edu/cnr/gem/sustainableforestry.htm.

Manual de conservación de frutas y verduras



"Productos Soyolapam"

Elaboraron:

Ing. Rosalba Luengas López y Ing. Aurelia Jiménez Gómez

San Martín Soyolapam diciembre de 2007

Figure 3: "Rio Soyolapam" Fruit and Vegetable Conservation Manual.

Manual de ganado bovino de engorda y aves de traspatio



Elaboraron:

Ing. Francisco Chávez Cruz y Ing. Rosalba Luengas López

San Martín Soyolapam diciembre de 2007

Figure 4: "Union de Productores San Martin" Cattle and Poultry Husbandry Manual.



Sistema Nacional de Educación Superior Tecnológica



Dirección General de Educación Superior Tecnológica

INSTITUTO TECNOLÓGICO DEL VALLE DE OAXACA

**DIAGNÓSTICO DE LOS SISTEMAS AGROFORESTALES EN SAN
MARTÍN SOYOLAPAM, COMALTEPEC; IXTLÁN, OAXACA**

MEMORIA DE RESIDENCIA PROFESIONAL QUE PRESENTA:

ALVARO LUNA HERNÁNDEZ

Como requisito para acreditar el IX semestre de la carrera de

INGENIERÍA FORESTAL



Ex-hacienda de Nazareno Xoxocotlán Oaxaca
Diciembre del 2007

Figure 5: Analysis of Soyolalpalam Agroforestry Systems Document.

Business Planning

Following the best production practices capacity building phase GEMSAF initiated business planning with the Soyolapam groups to develop a business mindset and create clear investment priorities for sustainable microenterprise activities. GEMSAF completed the first business plan *Transformacion des Productos Agroforestales* in November 2007, which covers the essential steps of planning a business for the women’s “Rio Soyolapam” group, including:

- Goals and financial objectives of the group enterprise
- Group organization, incorporation of members, structure
- Internal control and regulatory systems
- Market analysis, pricing, quality, demand, location
- Production techniques
- Costs of production, processing, packaging, delivery
- Income from various markets
- Timeline for business development
- Evaluation and adaptation methods



Figure 6: “Rio Soyolapam” label for Starfruit Marmalade.

CONCEPT	UNIT	QUANTITY	PRICE	TOTAL
Variable Costs				
1.- Production				
Starfruit	kilogram	60	1.0	\$ 60.00
Sugar	Kilogram	28	0.7	\$ 19.60
Pectin	Gram	88	0.01	\$ 0.88
Fuel	Kilogram	6.7	1.0	\$ 6.70
Labor	Day	14	8.0	\$ 112.00
Subtotal				\$ 199.18
2.- Distribution				
Jars (250 gr)	Piece	160	0.3	\$ 4.80
Labels	Piece	160	0.2	\$ 3.20
Transportation	Trip	2	8.0	\$ 1.60
Subtotal				\$ 96.00
TOTAL				\$ 295.18

Table 1: Direct production costs for producing 160 jars of Starfruit Marmalade.


Producto		Precio	Descripción
Jams	A. Starfruit	\$ 2.59	 Glass jars of 250 gramos. Made with natural, freshly harvested fruit with no chemicals.
	B. Coconut	2.43	
	C. Orange	2.38	
	D. Mamey	2.59	
Dried Fruit	E. Starfruit	\$ 1.29	Plastic bags of 250 gramos, made with individual or mixed fruits in ropes, rolls, or grated.
	F. Coconut	2.42	
	G. Orange	1.22	
	H. Banana	1.61	
Fruit Cordial	I. Nanche	\$ 2.47	Plastic jars of 250 gramos with nanches cured in aguardiente.
Candied Fruit	J. Frutas cristalizadas	\$ 2.69	Plastic bags of 250 gramos. May contain squash, chilacayote or pineapple.
Fruit Wine	K. Fruit Wines	\$ 4.30	Glass bottles of 500 mililitros. Made with banana, starfruit, orange or maracuyá.
Nectar	I. Nanche	\$ 3.71	Glass bottles of 500ml of nanche nectar.
Fresh Fruit	Orange	\$ 0.30	Sold per kilogram for retail (1 to 10 kg) and by box for larger buyers (wooden box 11 to 20 kg).
	Banana	0.50	
	Starfruit	2.00	
	Grapefruit	0.30	

Table 2: Rio Soyolal pam products based on cost calculation, market analysis, and profit percentage.

CONCEPT	MONTH												TOTAL ANNUAL
	ENERO	FEB	MAR	ABR	MAY	JUN	JUL	AGOS	SEP	OCT	NOV	DIC	
Jam jars (250mg)													
A) Starfruit	160	0	0	0	0	0	160	160	160	0	0	160	800
B) Coconut	160	160	160	160	160	160	160	160	160	160	160	160	1920
C) Orange	160	0	0	0	0	0	0	0	0	160	160	160	640
D) Mamey	0	0	0	0	160	160	160	160	0	0	0	0	640
Production Subtotal	480	160	160	160	320	320	480	480	320	320	320	480	4000
Reductions (5%)	24	8	8	8	16	16	24	24	16	16	16	24	200
Net Production (jars)	456	152	152	152	304	304	456	456	304	304	304	456	3800

Table 3: Monthly production estimate for jars of jam based on seasonal fruit availability.

CONCEPT	MONTH												TOTAL ANNUAL
	ENERO	FEB	MAR	ABR	MAY	JUN	JUL	AGOS	SEP	OCT	NOV	DIC	
SALES INCOME													
A) starfruit jam	4,147.20	0	0	0	0	0	4,147.20	4,147.20	4,147.20	0	0	4147	20,736.00
B) coconut jam	3,894.40	3,894.40	3,894.40	3,894.40	3,894.40	3,894.40	3,894.40	3,894.40	3,894.40	3,894.40	3,894.40	3,894.40	46,732.80
C) orange jam	3,811.20	0	0	0	0	0	0	0	0	3,811.20	3,811.20	3,811.20	15,244.80
D) mamey jam	0	0	0	0	4,147.20	4,147.20	4,147.20	4,147.20	0	0	0	0	16,588.80
E) dehydrated starfruit	2,584.00	0	0	0	0	0	2,584.00	2,584.00	2,584.00	0	0	2,584.00	12,920.00
F) dehydrated coconut	0	727.50	727.50	727.50	727.50	727.50	0	0	727.50	727.50	727.50	0	5,820.00
G) dehydrated orange	2,458.00	0	0	0	0	0	0	0	0	0	2,458.00	2,458.00	7,374.00
H) dehydrated banana	0	1,611.00	1,611.00	1,611.00	0	0	1,611.00	0	1,611.00	1,611.00	0	0	9,666.00
I) nanches cordial	0	0	0	0	0	0	2,471.00	2,471.00	0	0	0	0	4,942.00
J) candied fruits	0	0	0	0	1,348.00	1,348.00	0	0	0	1,348.00	1,348.00	0	5,392.00
K) fruit wines	0	0	1,292.10	1,292.10	0	0	1,292.10	0	1,292.10	1,292.10	0	0	6,460.50
L) nanches nectar	0	0	0	0	0	0	1,855.00	1,855.00	0	0	0	0	3,710.00
TOTAL INCOME	16,894.80	6,232.90	7,525.00	7,525.00	10,117.10	10,117.10	22,001.90	19,098.80	14,256.20	12,684.20	12,239.10	16,894.80	155,586.90
COSTS													
Direct costs	12,016.60	4,422.2	5,335.2	5,335.2	7,186.2	7,186.2	14,419.80	12,366.00	10,122.60	9000	8691.8	10,780.60	106,862.40
Indirect costs	50.00	30.00	40.00	40.00	40.00	40.00	70.00	50.00	60.00	60.00	50.00	50.00	580.00
Depreciation	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	2,880.00
TOTAL COSTS	12,306.60	4,692.20	5,615.20	5,615.20	7,466.20	7,466.20	14,729.80	12,656.00	10,422.60	9,300.00	8,981.80	11,070.60	110,322.40
PROFITS	4,588.20	1,540.70	1,909.80	1,909.80	2,650.90	2,650.90	7,272.10	6,442.80	3,833.60	3,384.20	3,257.30	5,824.20	45,264.50
BENEFIT/COST RATIO	1.37	1.33	1.34	1.34	1.36	1.36	1.49	1.51	1.37	1.36	1.36	1.53	1.41

Table 4: Total Rio Soyolal pam estimated income for all products, total direct and indirect costs, and projected profit margins (numbers in MX Pesos).

Microenterprise Investments

As a result of the business planning activities, the Soyolalpam women's group identified the need for a community kitchen space and equipment to process fruits and vegetables at a commercial scale. Community leaders requested GEMSAF to assist with providing technical support and fund-matching to apply for Mexican government programs (SEGARPA and SEDOSOL) that target indigenous communities and women's groups. GEMSAF helped write these proposals in February and March 2008 and will partially fund equipment for the kitchen that will be constructed with community resources. The following is a budget for the community kitchen: forty percent (40%) financing from GEM and sixty (60%) community contributions for the first year.

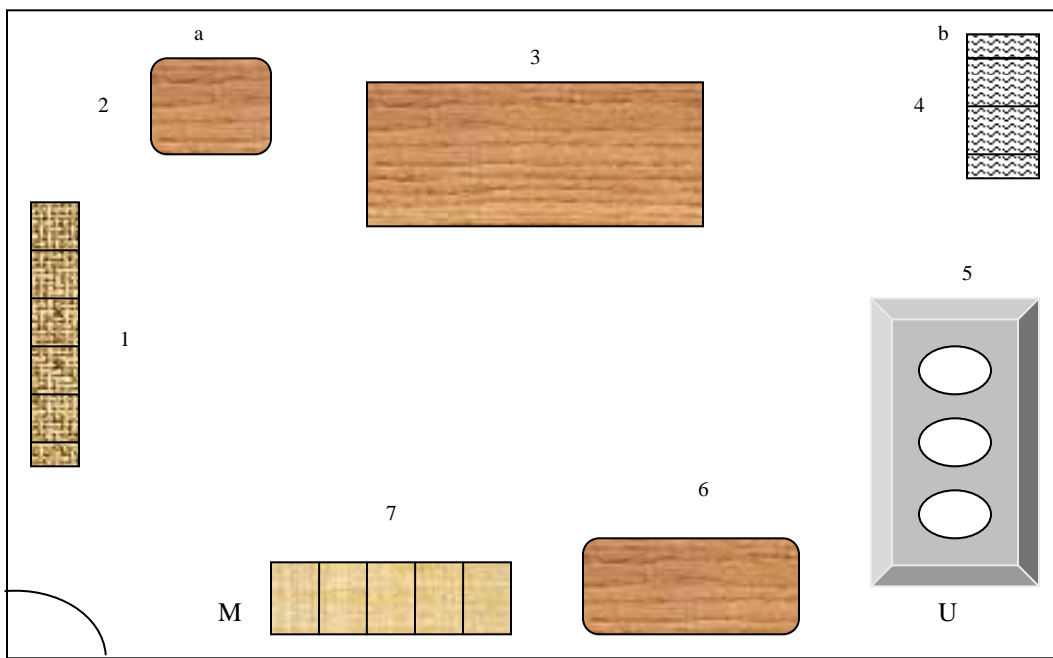


Figure 7: Floor Plan for Rio Soyolalpam Community Kitchen. (1.Anaquel de insumos, 2.Mesa para báscula y licuadoras, 3.Mesa de trabajo, 4.lavabos, 5.Estufa, 6.Mesa para envasado, 7.Anaquel de productos. a. fuente de energía eléctrica, b. fuente de agua, c. fuente de gas o leña)

Table 1: Budget for “Rio Soyolalпам” Fruit and Vegetable Processing Community Kitchen

ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL	FINANCING SOURCE	
					Community	GEM
Stove (3 burners)	piece	1	50.00	50.00		50.00
Gas tank	Piece	1	35.00	35.00		35.00
Scale (100grams)	Piece	1	37.50	37.50		37.50
Scale (0-10 kg)	Piece	1	95.00	95.00		95.00
Hydrometer	Piece	1	7.00	7.00		7.00
Refractometer	Piece	1	400.00	400.00		400.00
Thermometer	Piece	1	9.00	9.00		9.00
Blender	Piece	2	38.00	76.00		76.00
Juicer	Piece	2	17.50	35.00		35.00
Cooking pot	Piece	5	5.00	25.00		25.00
Pressure cooker	Piece	2	45.00	90.00		90.00
Plastic jars	Piece	5	3.50	17.50		17.50
Cutting board	Piece	5	2.00	10.00		10.00
Spoons	Piece	5	2.00	10.00		10.00
Wooden scoop	Piece	5	4.00	20.00		20.00
Plastic jars (2l)	Piece	5	1.20	6.00		6.00
Strainer	Piece	5	7.90	39.50		39.50
Plastic funnel	Piece	4	1.00	4.00		4.00
Barrel (20l)	Piece	2	19.50	39.00		39.00
Work aprons	group (2)	6	2.50	15.00		15.00
Washing equipment	group (6)	1	15.00	15.00		15.00
Plastic bags	Piece	50	1.20	60.00		60.00
Work table (2x1m)	Piece	1	190.00	190.00		190.00
Color labels	Piece	362	0.50	181.00		181.00
Glass jars (235g)	Dozen	14	12.00	168.00		168.00
Glass jars (460g)	Dozen	6	9.00	54.00		54.00
Glass bottles (250 ml)	Dozen	6	11.00	66.00		66.00
Kitchen construction	Building	1	2000.00	2,000.00	2,000.00	
Fruit	Kilo	100	0.80	80.00	80.00	
Sugar	Kilo	80	0.80	64.00	64.00	
Pectin	Kilo	1	10.00	10.00	10.00	
Labor	Day	42	10.00	420.00	420.00	
Transport of materials	Trip	1	35.00	35.00	35.00	
Transport of products	Trip	4	25.00	100.00	100.00	
				4,463.50	2,709.00	1,754.50
				100%	60%	40%

GEMSAF also assisted the Soyolalpam men’s cattle group to design a model silvopastoral system for rotational cattle grazing. This system includes a model pasture consisting of small paddocks separated by living fences made of nitrogen-fixing trees. The tree roots provide stability and fertility to the pasture soils, while the leaves provide a protein-rich fodder source. The plan also includes planting one hundred Neem trees to produce a natural insecticide spray, enhanced pasture forage species, and a corral for supplemental feeding and health monitoring of the cattle. These elements work together to naturally reduce production costs and increase animal growth rates.

Table 2: Budget for “Union des Productores de San Martin” Model Cattle Husbandry Unit

ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL	FINANCING SOURCE			
					Community	GEM	Other	
PEN AND CLOSURE DOORS								
Wooden Posts	piece	150	6.00	900.00	900.00			
Wire	roll	3	69.50	208.50		208.50		
Nails	kilo	2	2.90	5.80		5.80		
Neem Trees	piece	50	2.00	100.00		100.00		
Labor	day	15	10.00	150.00	150.00			
LOADING RAMP 1.5 x 1.2 m								
structure		1	200.00	200.00		200.00		
Labor	day	10	10.00	100.00	100.00			
SHUTE 12 x 0.7 m								
Wooden Posts	piece	30	6.00	180.00	180.00			
Supports	piece	30	5.50	165.00	165.00			
Nails	kilo	3	2.10	6.30		6.30		
Labor	day	7	10.00	70.00	70.00			
SHADE AREA 15 x 1.5 m								
Supports	piece	35	5.50	192.50	192.50			
Wire	kilo	1	1.50	1.50		1.50		
Nails	kilo	2	2.10	4.20		4.20		
Birlo 3/16x10	piece	50	0.25	12.50		12.50		
Roof sheets 32 2.45x85 m	piece	40	17.80	712.00		712.00		
Wooden posts	piece	15	5.50	82.50	82.50			
Labor		7	10.00	70.00	70.00			
FOOD TROUGH 15 m								
	piece	1	75.00	75.00	75.00			
WATER TROUGH								
	piece	4	22.00	88.00		88.00		
PASTURE								
Forage seeds	kilo	2	5.00	10.00		10.00		
Hose pipe 1"	meter	2000	1.50	3000.00			3,000.00	
MINERAL SALTS								
Calcium	kilo	50	0.45	22.50		22.50		
Premix	kilo	50	3.90	195.00		195.00		
Salt	container	50	15.00	750.00		750.00		
DIET								
Ground Maize	kilo	50	0.30	15.00	15.00			
Molasses	litro	50	0.30	15.00		15.00		
Pollinaza bulto de 40 kg	container	30	10.00	300.00			300.00	
					7,631.30	2000.00	2,331.30	3,300.00
					100%	26.21%	30.55%	43.24%

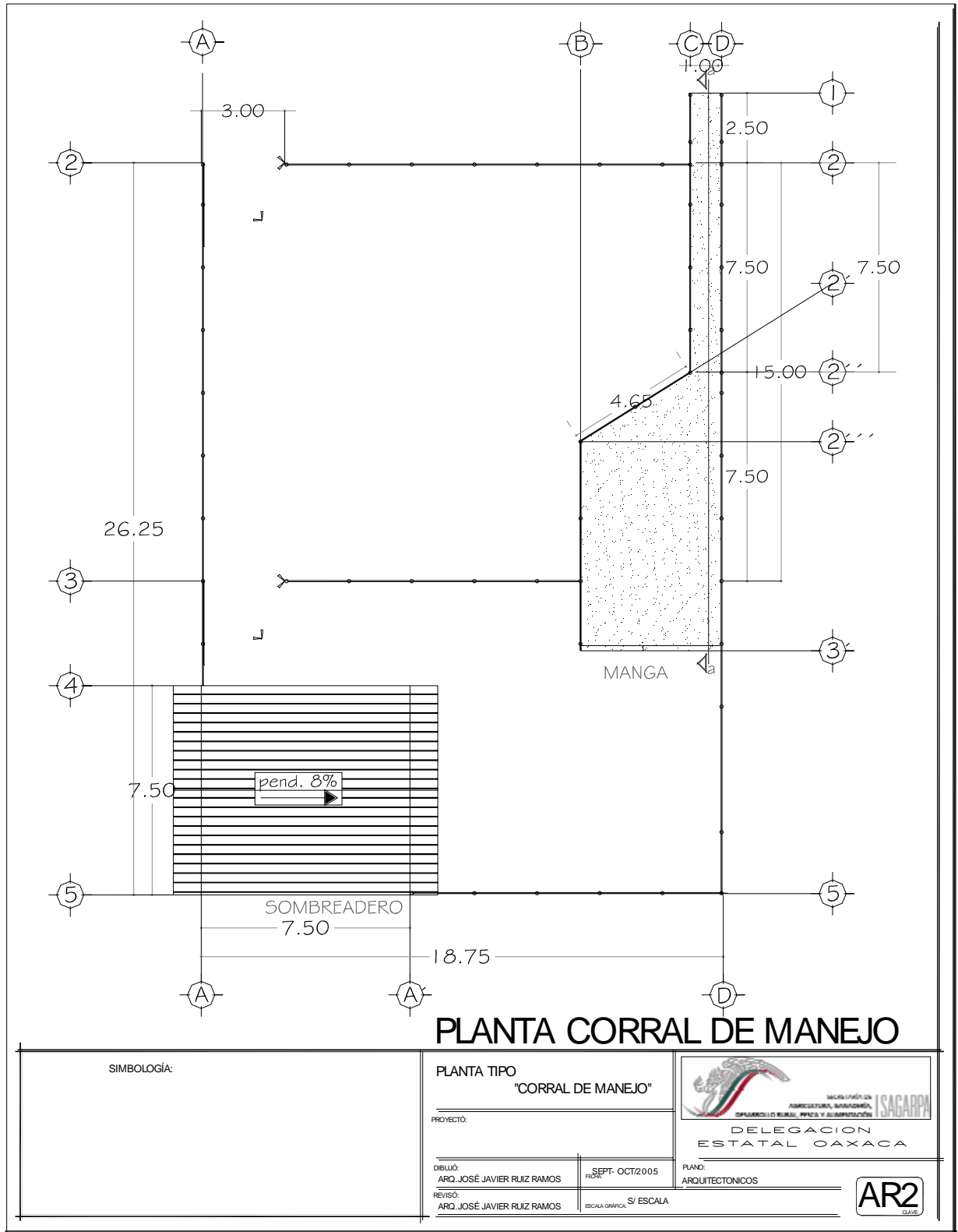


Figure 8: Blueprint for the corral, the supplemental feeding, weighing, bathing and health monitoring component of the model rotational grazing project.

The GEMSAF 2008 workplan includes implementing these two model microenterprise projects as well as developing a business plan with the cattle group. Community leaders are also applying for Government funding using the matching funds from GEMSAF to leverage additional resources. For additional details on the budgets and model microenterprise units, see full descriptions in “*Capacitacion e Inversiones de Tecnologia para la Sostenibilidad*” at www.uwsp.edu/cnr/gem/sustainableforestry.htm.

GEMSAF and In-Country Coordinator 2008 Workplan

Following a highly successful year of work in 2007, GEMSAF re-hired Rosalba Luengas as the in-country coordinator. The objectives of the coordinator are to facilitate training to help community organizations develop income-generating projects with sustainable agriculture and forestry systems. The coordinator oversees day-to-day GEMSAF activities and the participation of ITVO students. Specific activities of GEMSAF and the coordinator for 2008 include:

Capacity Building and Organization: similar to the manuals from Soyolalpan, these training modules will last approximately three months each, culminating in a “how to” manual specifically tailored to each community group.

- 1) Mushroom management course, “Productores de Hongos” Lachatao.
- 2) Greenhouse production and organic farming course, Amatlan.
- 3) Greenhouse production and organic farming course, Lachatao.
- 4) Organic farming course, Capulalpan.

Business Planning: similar to the “Rio Soyolalpan” business plan, each group will participate in analyzing their financial goals, enterprise opportunities, and resource assets to create a comprehensive plan and budget for creating a sustainable microenterprise. The business plans will assist the community groups to select enterprise activities, decrease costs of production, target the most valuable markets, and if necessary apply for external support.

- 5) Business plan for cattle husbandry and cow reproduction, “Unión Productores de San Martín” Soyolalpan.
- 6) Business plan for poultry, Soyolalpan.
- 7) Business plan for mushrooms, “Productores de Hongos” Lachatao.
- 8) Business plan for vegetables, “Productores de Hortalizas” Amatlan.
- 9) Business plan for vegetables, “Grupo de Salud y Bienestar” Capulalpan.

Demonstration Projects and Investments: The previously outlined GEMSAF investments in pilot microenterprise demonstration projects will be administered through ITVO for funding of approved itemized budgets for construction materials and project supplies.

- 10) Model cattle husbandry unit, \$23,000 pesos, Soyolalpan. 31% GEM, 23% Community, and 46% Mexican Government funding.
- 11) Model community kitchen, \$17,000 pesos, Soyolalpan. 40% GEM, 60% Community.
- 12) Model mushroom cultivation, \$10,000 pesos, Lachatao. Exact amount to be determined based on the outcome of the mushroom production course and business plan.

The GEMSAF time commitment and workplan is divided among the four communities of Soyolalpan, Lachatao, Amatlan, and Capulalpan, and work in Oaxaca City for marketing and collaboration with ITVO. The in-country coordinator will prepare a calendar for each activity based on discussion with the community groups and ITVO students and send a copy to GEMSAF by the end of April, 2008.



Figure 10: Lachatao mushroom group producing *Hongos Seta de Totomosclo* (oyster mushrooms on corn husks and bean hulls). GEMSAF will assist this group in 2008 with production training, business planning, and investments.