

**MIESO PILOT LEARNING SITE DIAGNOSIS
AND PROGRAM DESIGN**

July 2005

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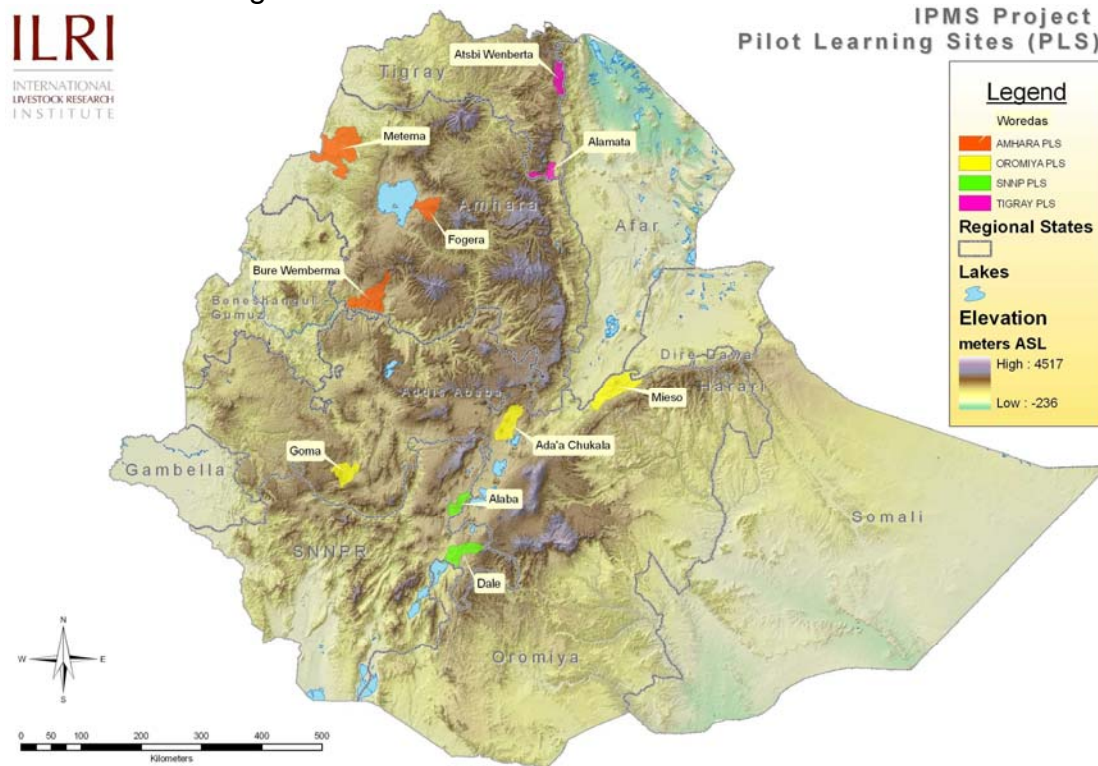
Mieso Pilot Learning Site diagnosis and program design

By IPMS team (names)

1. INTRODUCTION

The International Livestock Research Institute (ILRI) and the Ministry of Agriculture and Rural Development (MoARD) initiated a 5 year project in June 2004 with the financial assistance from the Canadian International Development Agency (CIDA). The project, entitled: "Improving productivity and market success" (IPMS) of Ethiopian farmers, aims at contributing to a reduction in poverty of the rural poor through market oriented agricultural development.

The IPMS project will assist by bringing knowledge on technologies generated by International and National Research Institutes as well as from other sources to the attention of the technology transfer agents and the farming community. It will also facilitate the feedback on these technologies. Such assistance will be provided to 10 pilot learning sites (PLS) across the country; (See map 1). Mieso district (woreda) is one of the 10 sites selected. To further enhance the utilization of such knowledge and the introduction of technologies, the IPMS project will also provide assistance to extension, input supply, marketing and finance institutions, including cooperatives. Such institutional support will be in the form of technical assistance, capacity building, supply of demonstration and training materials, some limited funds for innovative institutional arrangements and studies aimed at developing innovative institutional arrangements.



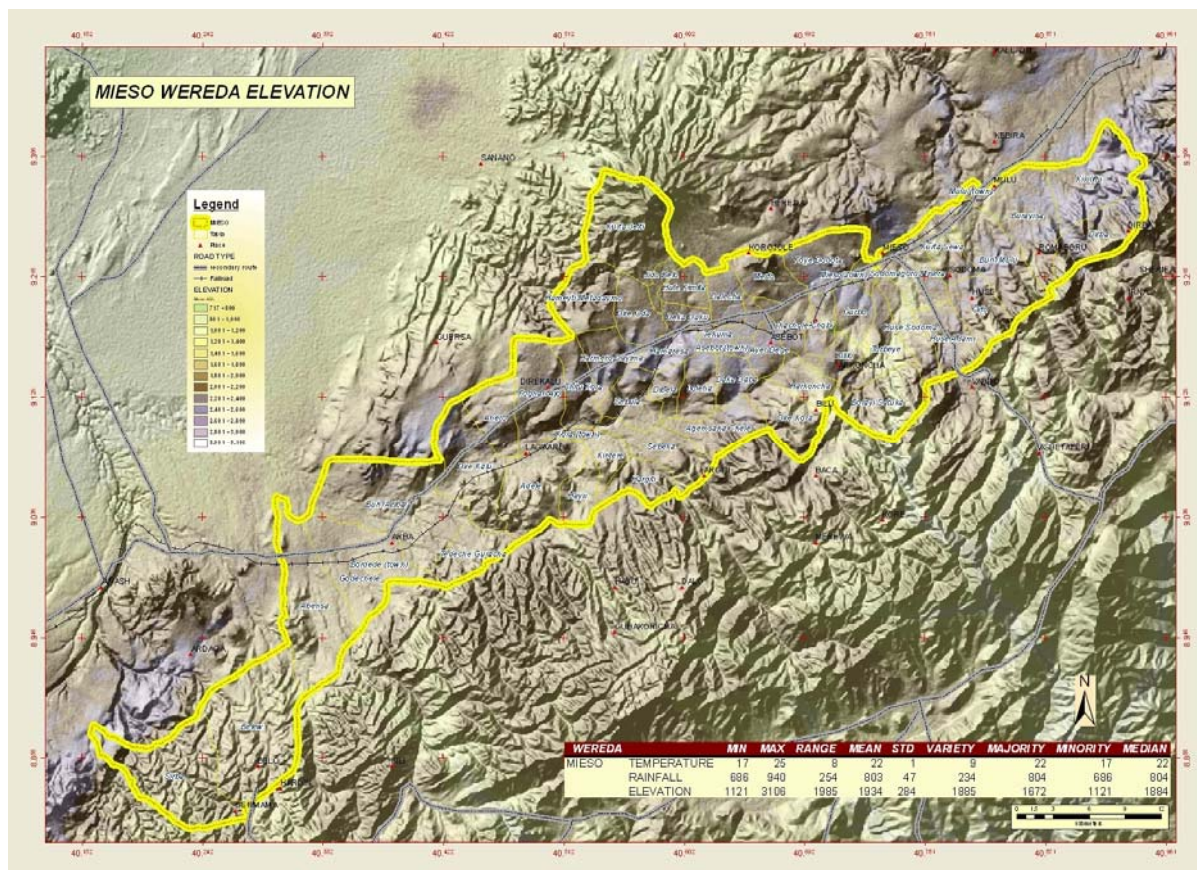
Map 1. Map of Ethiopia with IPMS Pilot Learning Sites (PLS)

2. FARMING SYSTEM, CROP AND LIVESTOCK PRIORITIES

2.1 Description of Mieso Woreda

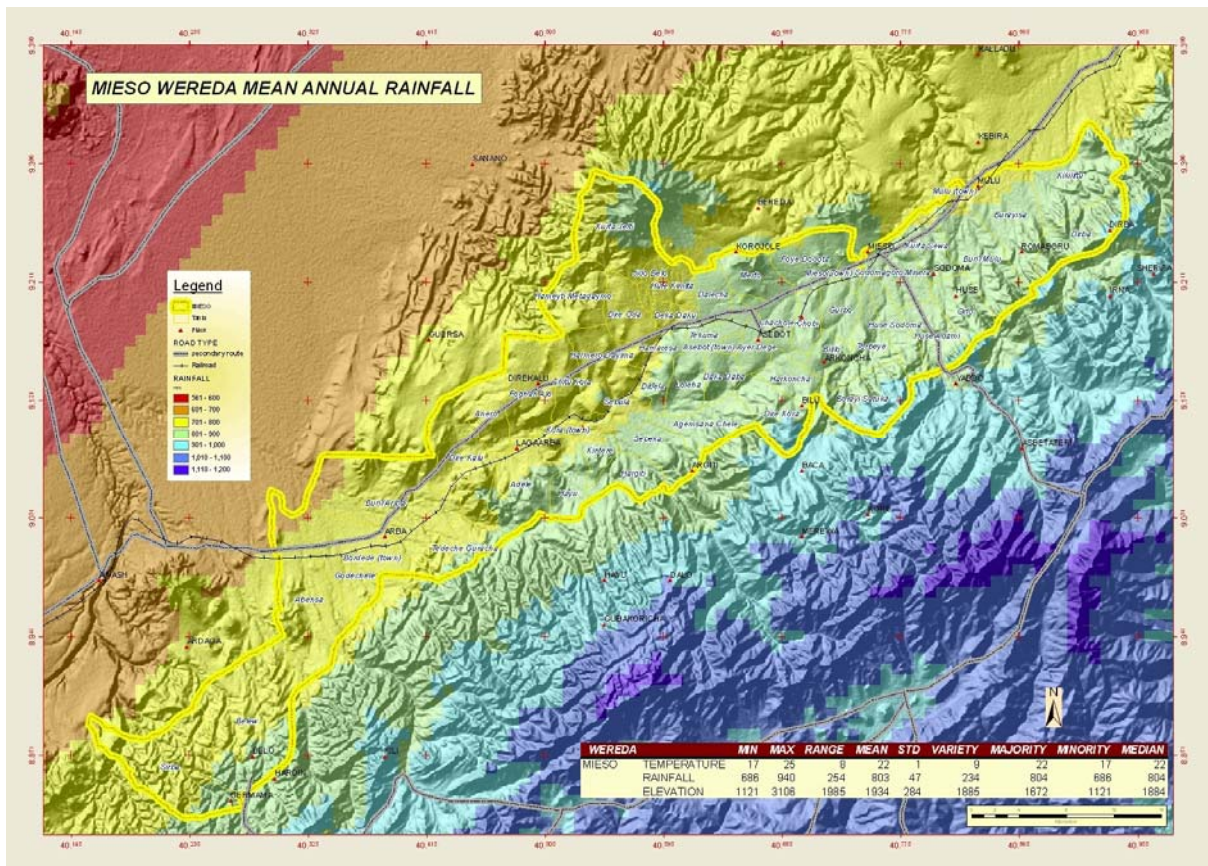
Mieso is located 300 km east of Addis Ababa at about 200 km east of the Oromiya Regional State capital of Nazreth. It is located west of Somali region and is one of woredas in Oromiya where there are pastoralist farming system is practiced. Mieso is located east of Doba, north of Chiro & Guba Koricha, northeast of Anchar woredas; and northwest of Somali and south and southwest of Afar regions. The woreda has a total number of 37 Peasant Associations and 4 town dwellers associations. According to the recent woreda population report, the total population is of the woreda is 143,228. The total number of agricultural households is 22,012, while the urban households are 6,785. The town dwellers are scattered in four small towns including the woreda town. Of the total rural households, 17,495 are male and 4517 (20%) are female households. The total rural population is 115,568, out of which, 58,612 are male and 56,958 (49%) are female

Geographically, the woreda is located between 40°9'30.1' W and 40°56'44' E; and: 9°19'52'N and 8°48'12' N. Altitudinally, the woreda ranges from 1107 to 3106 m above sea level (m asl), but most of the woreda is found at about 1700 m asl. The woreda is surrounded by a chain of mountains in nearly all directions. The highest mountain is Asebot, which is located north east of Mieso town. Based on the digital data, mean annual temperature is around 21°C, while average annual rainfall is between 635 and 945 mm. The amount of rainfall seems relatively sufficient if appropriate crops and livestock species are selected. However, the major problem lies in its distribution. Most of the rainfall is received in only few months, where most of the months are dry. As a result, recurrent drought is a major problem, and is making relief aid a regular source of livelihood for many rural families.



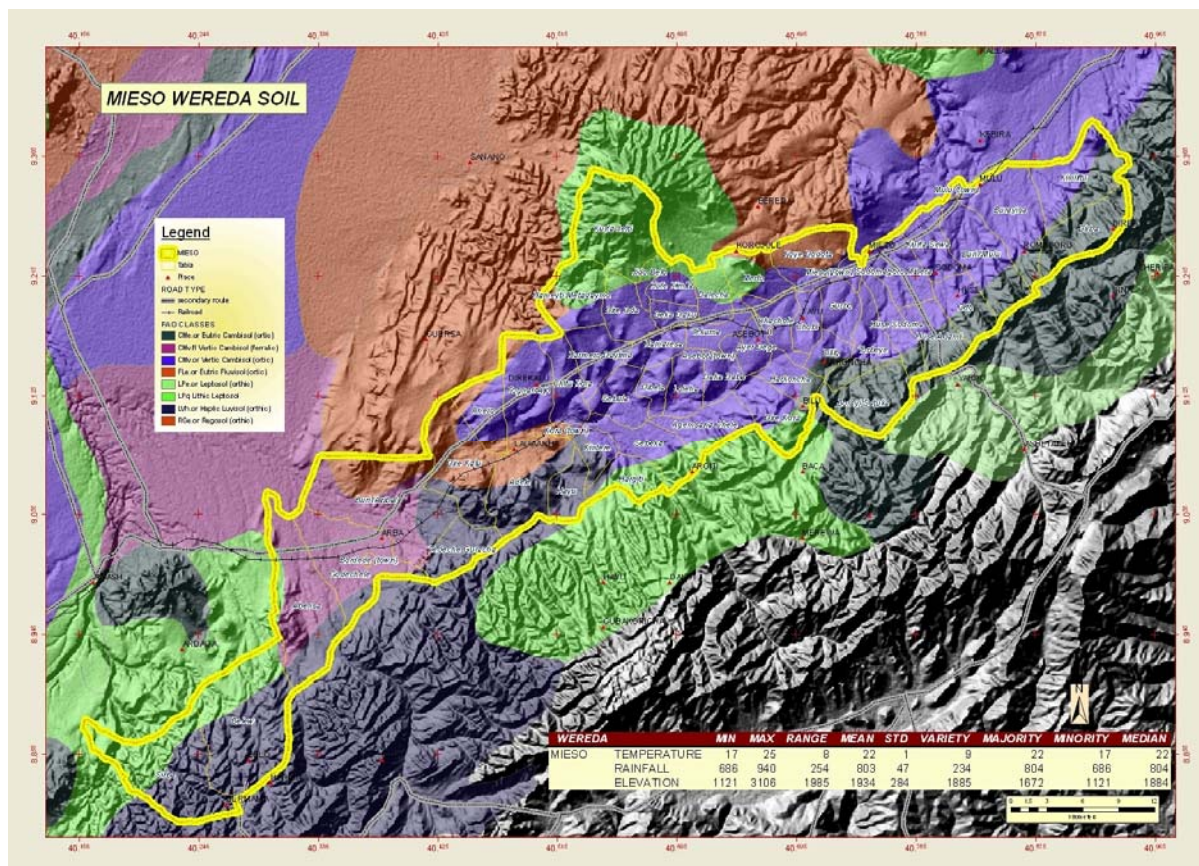
Map 2. Mieso woreda elevation map

Rainfall is a major limiting factor for agricultural production in the area. Agroecologically, the woreda is classified as Kolla (lowland). The mean annual rainfall for Mieso and its surroundings is about 790 mm, while the annual mean temperature is 18 °C. The area receives a bimodal rainfall where the small rains are between March and April while the main rains are between July and September (under normal conditions). During the small rains, farmers plant long seasoned sorghum which lasts about 8 months (April to November). However, during the main rains, all crops, including maize, teff and sesame are planted. Haricot bean is also planted during this time but intercropped with maize in almost all places. In addition, there are some PAs that intercrop haricot bean with sorghum. This is especially so in the areas neighbouring Chiro & Guba Koricha woreda in south. It means that haricot bean could also be planted during the small rains so that it will be harvested just before the main rains. Rainfalls during the main rains are erratic, as a result of which crops fail in most years due to lack of even distribution. Crop failures are much regular than in most of the PLSs so far studied. As a result of the recurrent drought in Mieso, CARE-West Hararge program, based in Asebe Teferi (zonal capital), had distributed different seeds of both cereals and legumes. The distribution carried out to 14,826 households (68% of the rural households) during the 2003 drought period. These farmers were given 3 coupons worth of birr 20 each to purchase seeds of their interest for that season.



Map 3. Mieso woreda rainfall map

According to FAO/UNESCO soil Classification system, the major soils of the woreda are Vertic Cambisol (orthic and ferralitic), Haplic Luvisol (Orthic) and Eutric Cambisol (Orthic), accounting for 50%, 16% and 11%, respectively. However, the soil classification was based on 1:2 million scale which may not give a right picture on the ground. Farmers believe that the soils are reasonably fertile, but the major problem which makes the soils to yield low is shortage of rainfall. Otherwise, farmers believe that what they get during good rains is a reasonably ok. Use of commercial fertilizer is not common in the area. There is hardly any fertilizer distribution in the woreda. Annual fertilizer use in the woreda is extremely low.



Map 4. Mieso woreda soils map

The total land area of woreda is 196,026 ha of which 22,487ha (~12%) are considered suitable for agriculture (Table 1). This shows that the area is much of a range land where livestock rearing would be a major activity. This is more so because also that agriculture is a risky business due to the failing rains. This is therefore an indication that focus need to be given to livestock commodities. However, crop commodities that are drought tolerant need to be considered in this PLS.

Table 1. Land use and land cover type of Mieso woreda

No	Land Use	Area coverage (ha)
1	Arable land	22,487*
2	Grazing land	17,362
3	Forest and bush	56,296
4	Potentially cultivable	46,415
5	Uncultivable land (hills)	48,466
6	Homesteads	5,000
	Total	196,026

*Of these, 21,010, 1,097 and 380 ha were under annual, perennial and vegetable crops, respectively.

Source: Mieso Woreda Agriculture/Pastoralist and Rural Development Office. (2003/4)

Currently, there is sufficient rainfall and farmers were busy on their farms. It is very common to see sorghum seedlings close to Mieso town. As a result of the current rainfall also, vegetation is very green and attractive. However, this is deceiving because during the long dry season the vegetation becomes very dry. Looking at the figures in Table 1, one can easily note that the area under bushes, forest and grazing land is relatively high, covering about 38% of the total woreda. This is the area which is the major source of livestock feed. The vegetation of the area is acacia dominated with some under growths of grasses. Looking at the landscape and vegetative cover of the area now, there seems to be no major soil conservation needs. However, this scenario may be different during the dry season. In addition, feed does not seem to be a major problem. There are three irrigation schemes developed by Oromia Water Resources Office (Wolda Jalela Eba irrigation scheme), CARE-West Hararge (Kenteri irrigation scheme) and Lutheran World Federation (Bililo irrigation scheme). On the other hand there is another traditional irrigation scheme on Beke river benefiting 155 farm households. These farmers have cleared about 83 ha out of which 20 ha is already under vegetables, mainly onion. It is now common to see small water harvesting ponds with plastic sheet for beddings in some agricultural areas of Mieso.

There are few rivers that could be used for irrigation. However, there are some efforts by some institutions to develop some irrigation schemes. The water table for Mieso is very deep and could reach up to 100 m. International Rescue Committee (IRC) has a GIS unit and has developed water resources potential for the whole of West Hararge, in which Mieso is part. According to IRC, the water table for Mieso is very deep, except in some river basins which may be shallower. Therefore, this problem makes use of underground water, as a source of alternative irrigation, unpractical.

Draught power from livestock is the major source of farm power, as is the case for other PLSs in the major crop growing areas. In addition, livestock also support in diversifying income and also used for risk aversion. More importantly, livestock are the major sources of livelihood in some areas where pastoralism is the way of life. Free grazing and use of supplemental crop residues in the agricultural areas are common sources of livestock feeding. Shortage of livestock feed is one of the major factors limiting livestock productivity. This is especially so during the dry season. In addition, different livestock diseases also affect productivity. The common animal diseases reported include, anthrax, blackleg, internal and external parasites.

2.2 Priority farming systems

Two major farming systems were identified in consultation with woreda agricultural experts, farmers in selected PAs and personal observations. The two farming systems identified were:

1. Sorghum/pulse/oil crops/livestock farming system (hereafter referred as crop/livestock farming system)

2. Pastoral system

1. Crop/livestock farming system

Twenty nine out of the 37 PAs belong to this farming system. There are currently 5 Farmer Training Centres (FTCs) in this farming system, named Melka Hora, Gena, Hunde Misuma, Oda Keneni and Oda Bala PAs. These are the only FTCs in Mieso woreda and all are in this farming system. Farm households in this farming system are 18,336 (83%) with a total population of about 96,651 people. The total cultivated land (annual and perennial) in this farming system is estimated at 21,877 ha. The total area under this farming system is about 145,864 ha. The average land holding (cultivable land) in this farming system is 1.2 ha per household. However, the proportion of total land to total rural households in this farming system is, 1.5 ha. Sesame and haricot bean are the major marketable crop commodities, while ground nut is a potential marketable crop. Currently ground nut is produced on sandy soils. Goats and cattle are dominant livestock commodities in the area. The PAs belonging to this farming system are found in the central part of the woreda. There are 5 zones in Mieso, which have between 4-11 PAs each. The 29 PAs belonging to this farming system are scattered in 4 zones. From within these 4 zones, some PAs are also classified into the other farming system.

The soils of this farming system are similar to the other remaining and are mostly dominated by Vertic Cambisols. Eutric Cambisols are also found in the south eastern parts of the woreda. Farmers believe the soil is fertile and need for additional is believed to be low. Even if they want to apply fertilizer, delivery of this input is very poor. On the other hand, it may also be uneconomical to apply fertilizer because of regularity of drought in the area. A traditional and 3 GO and NGO newly constructed irrigation schemes are located in this farming system. Sorghum, maize, sesame, haricot bean, teff, flax, chickpea are grown in this farming system. The area under these crops, other than sorghum is very low (Table 2). Sesame is intercropped with sorghum while haricot bean is intercropped with maize. Farmers believe that sole cropping for both crops could be more profitable but due to risks of drought in the area, they prefer intercropping them. In addition to these crops, chat is widely grown in the area. Farmers are used to growing chat in their backyards and also in the farmlands. Chewing chat is a very common practice.

Among the livestock types, cattle and goats are the most dominant livestock types in this farming system. Shortage of feed is one of the limiting factors in livestock production in both farming systems. This is aggravated by reduced biomass productivity due to shortage of rainfall. In addition, during the heavy rain periods, farmers are not used to conserving the extra biomass produced during these periods. However, conserving sorghum stalk as a source of feed is a common practice. Sorghum stalk is conserved not only as a source of feed but also as a source of firewood and construction. In some of the PAs shortage of grazing land is also a problem because most of the farm lands become under crops, especially during the rainy season. However, this is not so common for all PAs because those that are adjacent to the pastoralist system send their livestock to these areas. On the other hand, it is also common for farmers in both farming systems to move with their livestock to areas which are believed to have grazing areas. As a result of the recent rainfall in the area, all of the livestock observed in this farming system are better

looking and do not seem to suffer due to shortage of feed. Farmers in the woreda believe that the productivity of livestock has decreased substantially due to continuous drought, population pressure and shortage of grazing land as a result of the recent referendum, which took substantial grazing lands into another woreda. Due to population pressure, people are forced to convert natural grazing lands into crop lands and this is substantially affecting livestock productivity. Farmers in the woreda heavily dependent on oxen power for crop production.

Milk consumption is common in the area because farmers consume coffee and chat and need milk for neutralization. Livestock products are generally limited and expensive. During the periods of high feed availability, which is mainly during crop harvest and crop weeding periods, the livestock body conditions become good and sale of livestock earns a reasonably good income. It is also during this period when livestock products like milk and butter become easily available and earn some cash to farmers. The most important marketable livestock types/commodities are shown on Annex 6 of this document.

2. Pastoral system

There are 8 PAs that belong to this farming system and no FTCs are found in this farming system. Six of these PAs are found west while 2 are found northeast of Mieso town. The dominant soils in these areas are Eutric and Vertic Cambisols. Eutric Fluvisols are also found in very few areas. In these PAs, the number of rural households is 3676, while the total population is 18,941 (17%). The total cultivated land (annual and perennial) is estimated at 5635 ha, while the total area of these PAs is 58,625 ha. Based on the existing data, the average land holding (cultivable land/household) in this farming system is 1.5 ha per household. However, the proportion of total land to total rural households in this farming system is about 16 ha. There are no marketable crop commodities in this farming system because the main livelihood of these pastoralists depends on livestock production. Therefore, cattle and goats are the major marketable livestock commodities in this farming system. There are two kinds of pastoralists in the area. Some of the pastoralists are sedentary and live in one area. However, these pastoralists may move with their cattle during drought periods to other areas in search of feed and water. Even though these pastoralists are sedentary they practice no crop production, except under very rare cases where they may practice opportunistic cropping. Other wise their livelihoods are dependent on livestock production. The other group of pastoralists are mobile who have no fixed residential area. Their livelihoods are totally livestock dependent. They move with their family and livestock in search of feed and water for their livestock. Crop production is not common, except under very rare cases, for this group of pastoralists. Moreover, the majority of the pastoralists in this system are sedentary and may sometimes practice some kind of crop production.

Vegetation cover in this farming system is much higher than the other farming system. The vegetation is predominantly acacia and there is good underneath grass cover, especially during the period of our visit to the area.

2.3 Priority crop commodities

Sorghum, maize, sesame, haricot bean, chickpea and teff are grown in the area. However, sorghum covers the majority of the cultivated areas. Other than these crops are also grown, but are economically less important. In most seasons, sorghum and maize are grown in more than 95% of the cultivated land in the woreda, while the remaining crops account for only 5% of the area. Despite the size of land allocated for these crops, yield/ha is very low (Table 3). In most cases, because of the irregularity of rainfall, production fails and hence the woreda becomes drought-affected. Intensity of drought is very regular and crop failures are very common. Considering the amount of rainfall in the woreda, one may say that the rainfall is sufficient to support crop growth, but the distribution is very erratic. The rain falls in a very short period of time exposing the crops for moisture stress. Mieso is one of the woredas in Oromiya Region which is not food self-insufficient, and food handouts are very common. NGOs like CARE-West Hararge Program were also involved in distributing seeds during 2003. Productivity of crops (Table 3) is strongly associated to the amount and distribution of rainfall. However, distribution is more important than even the amount of rainfall received. Until recently, use of irrigation water was not common. However, efforts by both NGOs and the government are showing some results.

Few crops have been identified as priority marketable commodities in this PLS, because of unreliable and erratic rainfall. Two of the crop commodities selected (sesame and haricot bean) as marketable commodities by farmers and experts, could be the specialisation crops for the woreda. This is because the strategy focuses on short seasoned and drought tolerant crops. Chickpea is also considered as a priority commodity for this PLS. Other than these however, many other cereals (sorghum, maize, teff) are grown but are mainly produced for consumption purposes.

Among the haricot bean types, Red Wolyita was widely grown in the area. It is currently out of production in the area due to drought. This is because most of the seed was planted and was lost due to the continuous drought. On the other hand whatever was remaining in the hands of the farmers was eaten. Moreover, even if some farmers would want to maintain the seed, because of the seed's short storage life, it was damaged. Hence all conditions favored the disappearance of the important planting material. It seems that the red type is preferred as a source of food in the area.

During most of the years, crop cover shows that sorghum covers for more than 80% while maize covers about 15% of the total cropland in Mieso. While remaining proportion of the cultivated land is under perennials (chat), cereals and legumes accounting for about 5% in total (Table 2).

It is easy to see that productivity of all the crops is very low (Table 3). This is because of the drought but also due to selection of unsuitable crops. For example, the sorghum type grown in the area is long seasoned (8 months), while it is possible to grow the short duration improved varieties. These types have shown to be promising according to the Agricultural Research sub-centre in Mieso. Different varieties have already been introduced and even on-farm testing and farmer training have been conducted by this sub-centre. Sorghum varieties including 76-T1-23, Teshale, Meko and Seredo, which are short seasoned varieties (90-120 days), have already been tested and introduced to Mieso. The yield potential of these varieties is

25-45, 20-40, 20-40 and 22-33 qt/ha, respectively. Some of the farmers we had discussions with informed us that they had seen some of these varieties. Up take of early sorghum varieties could be easily facilitated because of this centre with a little bit of extension support. This is because Melkassa Research Centre is responsible for sorghum improvement in Ethiopia. In addition this center is also the national coordinator for haricot bean research. This Sub-Centre in Mieso is administered under Melkassa Research Centre.

IPMS may also help the woreda in promoting the use of these short duration sorghum varieties. This is because it may encourage the growing of these varieties during the long rains, which will mean sesame and haricot bean could be planted sole during the short rains or the vice versa. This may increase the marketability of the priority marketable commodities and contribute to the betterment of farmers' livelihoods. The details of this arrangement may be worked out in consultation with relevant stakeholder (farmers and experts). As a result of the unreliable rainfall and regular failure of the long seasoned sorghum varieties, this may also ensure reliable yield.

Different sesame and groundnut varieties are also being tested in the sub-centre. Sesame varieties, Adi (83-100 days) and Tate (110 -130 days) have been tested on-station and on-farm in the area. Farmers who had the chance to see these varieties had the preference of growing varieties. This is because 1. They are short seasoned (can escape drought), 2. Market demanded (white varieties) 3. Can also give better yield compared to the locally grown variety, and 4. Are pest and disease resistant than the locally grown sesame. However, the extension was not strong enough to support this activity. The research on sesame and groundnut is organized by Melka Werer Research Centre. Hence, Mieso Sub-Centre is the testing ground for many of the crop varieties that both centers are producing for the arid environments like Mieso. This PLS has a good opportunity of introducing better varieties from both centers.

Mieso is suitable to grow many of types of crops, but lack and sometimes poor distribution of rainfall are the main limiting factors. Vegetables and tropical fruits could easily be grown in the irrigated areas. Currently, onion is produced in one of the irrigation schemes. Vernonia could also be a potential commodity that could be grown in this PLS. Experiences from other PLSs, like Alamata and Metema, have shown that this plant can easily be grown in similar climates like Mieso.

Table 2.-Type of crop, area and production from 2002-2004 seasons, Mieso

No	Crop	Year					
		2002		2003		2004	
		Area (ha)	Production (qt)	Area (ha)	Production (qt)	Area (ha)	Production (qt)
1	Sorghum	12778	*146	14743	58447	16,417	29550.6
2	Maize	2140	*	2850	16352	2800	1677.9
3	Teff	101.5	*	50	93.4	12	14.4
4	Chickpea	138.5	*	70	20.5	88.5	66
7	Haricot Bean	46	*	435	504.5	320	948
8	Sesame	42.5	*	141	182	161.5	646
9	Ground nut	0	*	6	25	8.5	25.5

	Total						
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*Crop failure due to drought

Source: Mieso Woreda OoPRD, Extension Team (2005).

As can be seen from the table, the productivity of most crops is very low. The following table shows the productivity of the grain crops grown in the wordea, over 3 years.

Table 3. Mean crop yield (qt/ha) in Mieso woreda, mean of 3 years (2002-2004)

No	Crop	Yield/ha
1	Sorghum	3
2	Maize	6
3	Sesame	2-7
4	Teff	2
5	Haricot Bean	2
6	Chickpea	5

Source: Mieso Woreda OoPNRD, Extension Team (2005)

The marketable crop commodities for the two farming systems are shown below. In addition to these commodities, other potential commodities are also included.

1. Mixed crop/livestock farming system

- 1st Sesame
- 2nd Haricot bean
- 3rd Chickpea
- 4th Ground nut*
- 5th Vegetables (onion, tomato, pepper, carrot, cabbage)**
- 6th Vernonia***
- 7th Moringa olifera/leaf and seed production/***

* Grown on very small scale but could potentially expand

**Potential commodities to be grown when irrigation develops in the area

***Potential commodity, no production as yet but to be tested in Mieso Research sub-center

2.4 Priority livestock commodities

Drought is very regular in Mieso and effects are also significant in livestock production, as is on crop production. In the crop dominated farming system, grazing lands are converted into farmlands due to human population. During drought periods, migrating with livestock to other areas is very common. Despite the efforts, mortality of livestock is very high during these periods. Sorghum stover is normally conserved and used as a source of feed, even though the feed value is very poor. The current rain has improved availability of feed for livestock; as a result their physical condition is good. Tethering is a common practice in Hararge, but because of extensive grazing areas, especially in the Pastoral farming system, it is not a common practice in Mieso.

Goats, cattle and sheep for sale were observed in a small town market at Asebot. Majority of these were goats. Price of fattened cattle is expensive from what has

been observed in that small market. This shows that if farmers are able to fatten livestock, they may be able to improve their livelihoods. This is because fattened livestock from Hararge have the reputation of being quality meat in the Addis market. Some farmers used to fatten and sell cattle in Mieso, but because of the shortage of feed the fattening takes longer period. In some instances we were told that an ox to fatten may take between 1-2 years. On the other hand, Mieso is now becoming (since 2 years) as one of the major goat market places for the mutton exporting companies in Mojo and Metehara. Currently there are 5 goat slaughter companies. One of these companies is, ELFORA Agro-Industries PLC, which is currently buying goats from Mieso. The current price of a live weight goat is birr 4.90/kg. This price is however for the middle men who buy at a cheaper price from the farmer/pastoralist and sale it to the company. The reason that the company is buying from the middle men is because they can avail truck transportable number of goats. If the service cooperatives in the area are financially supported, through credit system, they may be able to handle this marketing and benefit from it. This could be an entry point which IPMS could use to improve the livelihoods of farmers/pastoralists. The other slaughtering companies could also be encouraged to buy from these service cooperatives as it is short distance from the companies. Some of the slaughter companies are buying goats from as far as Borena in the south. Mieso has the advantage because it is very close to Mojo and Metehara, which are the home bases for the slaughter companies.

Camel population in Mieso is the highest of all woredas in west Hararge zone (Table 4) and is home for about 60% of the camel population. There exists an abattoir in the rift valley, around Metehara, where camel meat is packed and exported. This is an opportunity for Mieso as camel herders may benefit from the existence of this facility. As a result of high camel population, camels are considered as potential marketable commodities.

The common animal diseases reported include, anthrax, blackleg, internal and external parasites. Poor body condition of livestock is also believed to contribute to the lack of resistance to many of the diseases. The number of livestock is relatively high (Table 6) in the area, but the out put very poor. This is also the case in other PLSs. Extension activities in Mieso is probably the weakest of all PLSs we have worked in. The coverage of veterinary services is poor. There are only 4 veterinary clinics of types B and C in the woreda. There is however 1 DVM and 6 other support staff for the veterinary service. Because of the gap in the veterinary services, use of illegal drug is also common. The veterinary technicians are small in relation to the size of the woreda and number of livestock in the woreda. The per capita cattle holding of the agricultural households are 5. Small ruminants and particularly goats are important livestock commodities contributing to the livelihoods of farm and pastoral households.

According to woreda OoPRD development plan, in addition to crop production, livestock resource development is a key issue for ensuring food security and improved livelihoods. To this effect, the woreda strategic plan focuses on cattle, goat and livestock forage production in the woreda.

Table 4. Livestock Population of Mieso Woreda

Livestock Species	Population
Cattle	110,462
Goats	40,993
Sheep	24,516
Camel	20,193
Donkeys	7,938
Poultry	53,553
Bee Hives	548*

* Only 15 are modern hives

Source: Mieso Woreda Office of Pastoralists and Rural Development (OoPRD), 2003/4

The marketable livestock commodities for both farming systems are shown below.

1. Mixed crop/livestock and pastoral systems

- 1st Goats (mutton)
- 2nd Cattle (fattening)
- 3rd Cattle milk
- 4th Poultry/egg and meat/

2. Pastoral system

- 1st Goats

* Potential commodities

- Camel/meat- live animal sale/
- Cattle milk

2.5 Natural Resources Conservation

There is a distinct difference in vegetative cover between the farming systems. The pastoral farming system has denser vegetation which is predominantly acacia. On the other hand there is hardly vegetative cover in the crop/livestock farming system. It looks like a commercial farm as one drives to Mieso and Asebot. The plot boundaries are sometimes not easily seen, especially as one gets closer to Asebot and Mieso towns. Except the single shade trees in the farmlands, there are no trees. These trees are used as shade trees during chat chewing.

However, the current dense acacia trees in the pastoral areas may not last long. This is because the pastoralists are involved in charcoal making. It is very common to see piles of sacks full of charcoal on the roadsides as one drives to Mieso. Soil erosion does not seem to be a problem in the area, probably due to the topography and the remaining vegetation cover.

Last year some 300,377 different seedlings were distributed in the woreda. These trees were mainly of sesbania and leucaena. However, Moringa spp., *Cordia Africana*, *Grevellia robusta*, *Acacia* spp. and *Schinus molle* were also among the tree species distributed. Fruit tree seedlings of papaya, Casmir and avocado were also distributed to different areas. Other soil and water conservation activities include

construction of terraces from stone and soil bands. A total of 149 km of these bands were constructed in Mieso last year

Mieso woreda has a chain of mountains surrounding it and these mountains contribute to bringing seasonal waters to the farmers and pastoralists. According to the OoPRD in Mieso, many pastoralists use water coming from the mountains to irrigate their pasturelands. Some of the farmers also use this water as spate irrigation to supplement their crops during rainfall shortages.

3. Institutions

3.1. Marketing

Cooperatives

A Cooperative desk, now under the office of pastoralist and rural development/OoPRD/, is mandated for the organization and development of cooperatives in the woreda. The desk is organized with 4 teams: Cooperative Promotion /Organization, Credit and Saving, Market and Credit, and Auditing Service teams. Beginning from mid way through the month May 2005 the input supply team moved into the cooperative desk as well. But it was not possible to trace whether the then “input supply team” reorganized as a self-contained team or not.

The cooperative desk doesn't have staff based below the woreda level. All experts of the desk discharge their duties and responsibilities by traveling to the PAs/Peasant Associations/.

The Cooperative desk is mandated to give legal entity to multipurpose cooperatives. However the provision of legal entity to irrigation cooperatives, and to Unions is currently the authority of the regional sector of cooperative development, which is under the regional bureau of Agricultural and Rural Development/ARD/.

There are 7 non –agricultural cooperatives so far organized in Mieso woreda. Out of these 7 cooperatives three of them are multipurpose; the other three are mining and the remaining one is saving and credit. Apart from these, there are 13 cooperatives / 9 multipurpose, 2 credit and saving and 2 women milk collection and processing/ which are at the early stage of organization at their respective areas/PAs/. There is also one self-initiated cooperative in Oda Roba PA. The members are 18 and as its major undertakings it focuses mainly on crop cultivation.

The function of each cooperative varies depending upon the purpose to which they are organized for. For example, the multipurpose cooperatives engage on grain and animal buying and selling while the mining ones are dealing with mine/lime, sand and stone/ extraction and selling and the credit and saving one is also focusing on the provision of credit and saving services to its members.

All the cooperatives are not strong enough to discharge their full responsibilities. This is because of the fact that they lack capacity, don't get the anticipated support from the woreda cooperative desk, lack of information and linkage, no well founded institutional credit service system and drought related problems.

Likewise, the cooperative desk itself is experiencing so many difficulties. A few of them are low capacity of staff, shortage of logistics and operational budget.

Others

Private traders are actively involved in cereal grain, oil crops, pulse and livestock marketing in the main towns like Asebot, Bordode, Kora and Mieso.

Private traders sell cereal grains in areas like Dire Dawa and as far as Asaita, Semera, Gewane and Logia in Afar region. While oil crops like Sesame is sold to oil extractors in Nazareth and Addis Ababa. But livestock sale takes two forms: That is, goat and sheep are supplied to meat export abattoirs in Metehara, Mojo and ELFORA in Addis Ababa.

These potential buyers come once in a week after confirming that the animals are large enough to be transported by trucks at once. This way up to 500 goat's and/sheep/ are trucked to these abattoirs every week.

The goat market became more attractive/lucrative/ in the past 2-3 years. And a kilo of live goat fetches ETB. 4.00 to 5.50. Unfortunately the farmers/pastoralists didn't make best use of this heating up and lucrative market. This might be attributed to knowledge and information gap that is associated with quality focused market production, weak extension support, lack of capacity, problems of feed supply, diseases and management problems. Furthermore the farmers /pastoralists are far from approaching this dynamic market opportunity in an organized /cooperative way. All these combined to adversely affect the producers and on the contrary more favored the tricky middlemen. In the case of fattened cattle the local traders/in and around Mieso woreda/ themselves truck the animals the big markets like Addis Ababa, Nazareth, Dukem and Debere Zeit.

In the past two years Sesame fetched better price, as high as 500 birr per quintal locally. However the farmers' disposal time coincided with the high supply time in which traders take down the price as low as to 300 birr per quintal, right after sesame harvest. Hence they failed to enjoy the fruits of their tiresome efforts.

3.2. Input Supply

Because of the recurrent drought, which is inherent to the Mieso Woreda, farmers barely use inputs like artificial/inorganic/ fertilizer and chemicals/herbicide and pesticide/. The same holds true to manure use.

In fact farmers obtain limited supply of improved chicken, goat, sheep and oxen in credit it is mainly managed by the Office of Pastoralist and Rural Development/OoPRD/. In addition to this, the OoPRD provides veterinary services/including vaccination/ in a cost recovery system. As the inadequate veterinary services is compounded with the farmers'/pastoralists' less inclination to adopt the recently introduced cost recovery vaccination initiative/vaccination services for cash payment on the spot/ made things worse off and contributed a lot to the health deterioration of the livestock.

Despite the fact that the woreda is known for its huge livestock resources and the limiting factor to the livestock production is feed shortage there is no as such well-organized fodder development and expansion and planting material supply in the woreda. In the case of modern beehives the supply is limited to only 15.

One of the newly emerging inputs in woreda is the supply of plastic sheet as part and parcel of rainwater harvesting scheme and so far about 600 plastic sheets has been reached in the hands of the farmers in credit. The other pertinent input soon to be distributed to one of the women milk cooperatives /at Melkahora or Gena PA/ is milk processing equipment. Hopefully this activity will be materialized very soon.

3.3. Rural Finance

Unfortunately, there is no Rural Micro finance institution in the woreda to name. As far as the insignificant credit available to farmers is concerned, it is entirely managed by the woreda Office of Pastoralist and Rural Development (OoPRD)

As the speculation goes on the only hope to the rural community of the woreda is the endorsed plan of the Oromiya regional states' opening of "Oromiya Credit and Saving Bank" (OCSB) sometime in the future.

3.4. Agricultural Extension Services

The agricultural extension service in the woreda is provided by OoPRD.

The OoPRD is organized in to 3 offices namely,

- Cooperative Development and Promotion Desk,
- Office of Food Security and Disaster Prevention and Preparedness and
- Office of Rural Road construction and Maintenance

There are also 6 teams directly involved in the agriculture development sector.

The 6 teams are:

- Extension team
- Irrigation team
- Natural Resource Management team
- Range and Rural Infrastructure Development team
- Natural Forest Conservation and Development team and
- Veterinary, Production and Marketing team

The extension team is composed of the extension, crop production, crop protection, horticultural crops development and rural women affairs sections. The extension team has got team leader, 2 supervisors, in addition to the staff in the respective sections mentioned above.

The extension service in the woreda could be classified into two that is the minimum and regular packages.

There are 27 Development Agents/DAs/ in Mieso woreda. But none of them are graduates of any of the agricultural colleges/institutions. The only Agricultural Extension knowledge they relished and exposure acquired is the one month training offered to them as an entry point to get started the extension activities as DAs in their respective sites/PAs/.

It is hoped that about 3 TVETs graduates will join this under capacitated staff, at the end of this academic year/July-August 2005/.

Out of the 17 FTCs /Farmers' Training Centers/ quotas given to the woreda, Five of them are under construction and to be finished before this cropping season. If these FTCs are completed according to the plan they have to be equipped with the essential equipments and demonstration materials and 15 staff/3 staff each, with crop and livestock production background and natural resource management/. Whether this will be materialized or not is to be left to time judgment.

In view of the man power shortage the Mieso woreda experienced, it might be a far off dream to track down all these 15 staff to the 5 FTCs. This matter calls upon an immediate attention by all concerned institutions, particularly the Oromiya Bureau of Agricultural and Rural Development and Western Hararghe Zone OoARD.

Table 5. Number of staff and educational level of the key woreda OoPRD

Desk/Team	Level of Education	Number
Extension team		
▪ Team leader	12+2	1
▪ Crop production	12+9m+3	1
▪ Crop protection	12+9m	4
▪ Horticultural development	12	1
▪ Rural Women Affairs	10+3	1
▪ Development Agents	12+1m; 10+1m; 9+1m	18; 8; 1
▪ Supervisors	12+3	2
Range and Rural Infrastructure Dev't	12+2; 12+3M; 10+3	1, 1, 1
Natural Resource Management/NRM/	12+9m; 12+2; 12; 10+3	1,1,1,1
Vet., Production and Marketing	12+6; 12+2; 12+9m; 11+6m; 12+1m; 10+3+9m; 10+3	1;3; 1;1;1 1;1
Irrigation	12+2; 12+TTI+3; 12+1	1;1;1
Forest Res. Development & management	-	-
Office head	12+2	1
Cooperative desk	12+6; 12+2; 12	1,1,4

Generally the woreda is in awkward scenario, which is characteristically manifested in conflict, marginalization and recurrent drought

3.5. Gender and HIV/AIDS Services

The woreda Women's Affairs Office/desk is organized under the head of the people's participation and organization office within the Mieso woreda Administration.

The main function of the desk, among other things are, awareness creation on gender issues, support woreda sector offices to mainstream gender in their activities, organize women's associations', engage on broader activities of the eradication of the Harmful Traditional Practices (HTP), like forced marriage/abduction/,female

genital mutilation/FGM/ and violence against women, etc and help in the promotion of girl's education and assist in the formation of girls' clubs at school.

The woreda women affairs office (desk) is currently run by two staff. Although the desk doesn't have its own structure below the woreda levels, the activities are handled by the PA level women's associations and relevant sectors like the OoPRD rural women's affairs section.

Even though the majority of the woreda population resides in rural areas and the male household heads predominates the proportion of women household heads accounted for around 21 %. This in turn calls for forging a concerted effort toward ensuring the well representation of women in all development arena so that sustainable livelihood is guaranteed indefinitely.

In an effort to reduce the spread of the pandemic/HIV/AIDS/ the Mieso woreda HIV/AIDS prevention secretariat is doing its best since its establishment in 2003. within the limits of its resources and capacity the woreda HIV/AIDS secretariat performs its activities mainly focusing on awareness creation program to the public, encourage the public to take self-initiated holistic actions to prevent and control HIV/AIDS, formation of various anti-HIV/AIDS clubs, support and care to people living with HIV/AIDS and distribute Condoms to needy people and yet the office suffers from diverse but interrelated constrains, that includes- lack of pertinent and up to date information, lack of timely and regular training to anti-HIV/AIDS clubs, problem of logistics, financial problems, lack of capacity to develop ICT materials, failure to entertain the growing demands of condoms, failure to get assistance to implement mobile VCT/Voluntary Counseling and Test/program and limited support in the fight against HTPs.

4. PRIORITY COMMODITY DESCRIPTION, ANALYSIS AND POTENTIAL INTERVENTIONS

The following tables provide a brief description of production, input supply and marketing aspects of the priority commodities together with areas requiring attention and potential interventions as suggested by farmers and professionals during the Woreda PRA and planning workshop. In addition, the possible institutions to be involved in executing these activities are also shown.

Table 6. Sesame – system		Crop/livestock farming
Production		
<p>The production of sesame is smallholder based. Since the last 2 years, farmers' interest in sesame has increased. This is because the price of sesame has increased since then. Area under sesame is very small now, but farmers are currently planning to expand sesame production. The currently available sesame cultivar is intercropped with sorghum and takes 6-7 months to mature. Added to its poor inherent productivity, sesame is made to compete with sorghum and hence productivity is extremely low. As in other sesame growing PLSs, farmers in Mieso also do not apply manure or fertilizer on sesame. In addition, because of its late maturity, sesame may fail due to shortage of rainfall during flowering and seed setting. A farmer may get 80-120 kg/ha of sesame when intercropped with sorghum. In addition to the recently increased price, its better drought tolerance is encouraging many farmers to increase area under sesame for the coming cropping season. Again because white varieties fetch higher prices and mature early, farmers are interested to change to these types. However, there is lack of planting materials in the area. Farmers believe that sesame gives better yield when planted sole and on well drained soils. According to information from farmers, about 40% of the farmers in the crop/livestock farming system plant sesame.</p> <p>There are no small scale oil extracting plants in Mieso as was the case for Metema. This could be because the quantity of sesame is produced very low. However, farmers are used to consuming sesame oil without extraction. Identifying problems related to sesame production was difficult because sesame is intercropped and the amount of land under this crop was very small.</p>		
Areas which need to be addressed	Potential interventions	Responsibilities/tasks
Use of late maturing and less price fetching sesame cultivars	Popularize the high-price-fetching and already tested white sesame varieties	Mieso Agricultural Research Sub-Centre/Melka Werer Research Centre, OARI, IPMS-TA, Woreda OoPRD
Rust affecting sesame yield during both high/low rainfall periods	Use of appropriate planting time in addition to selecting resistant varieties	Mieso Agricultural Research Sub-Centre/Melka Werer, Woreda OoPRD, IPMS - TA
Occasionally, aphids affecting sesame plants when young (before flowering)	Apply appropriate chemicals	OoPRD-Extension Team IPMS - TA
Diseases like blight	Develop and introduce resistant	Mieso Agricultural Research

("mich") are common	varieties and exercising crop rotation.	Sub-Centre/Melka Werer, Woreda OoPRD–Extension Team, IPMS – TA
Low performance on less drained soils	Select well drained soils	Mieso Agricultural Research Sub-Centre/Melka Werer, Woreda OoPRD–Extension Team, IPMS – TA

Input supply

Farmers do not use fertilizer or cattle manure on sesame. Extension activities related to sesame, or even other crops, is weak. Farmers use own planting material which is late maturing. Because sesame is not planted as a sole crop, application of chemicals against insects might be difficult. The chemical to be used for sesame need to be applicable for sorghum also, other wise it may damage the sorghum. The price of a kg of sesame seed in the market is 5 birr. Two improved sesame varieties (Adi and Tate) have been tested so far in Mieso. Those farmers that had the chance to see these varieties are happy about their performance. It is therefore important to try wider adaptation of these varieties. There were 8 farmers trained in the agronomy of sesame and groundnut from some PAs. These trained farmers and others will be given seeds of both sesame and groundnut to be tested by the farmers themselves. These planting materials will be given for free. This could be an eye opener for the farmers practicing but alsoto the other neighboring farmers in the area. The fact that the Sub-Centre is operational in Mieso is an added advantage.

Areas which need to be addressed	Potential interventions	Responsibilities/tasks
Lack of improved sesame varieties	Popularization of the already Introduced varieties and their on-farm multiplication for sustainable and reliable supply	Mieso Agricultural Research Sub-Centre/Melka Werer, OoA – Extension Teams IPMS – TA
High fertilizer costs and nearly total absence of these materials	Use of alternative	ARARI OoA – Extension Teams/cooperatives IPMS – TA

Credit

This PLS is probably the weakest in terms of institutional capacity with regards to credit. Therefore the major problem is the total absence of the credit giving institutions. This is unlike other PLSs who had problems in the application of the credit system.

Areas which need to be addressed	Potential interventions	Responsibilities/tasks
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Marketing

Sesame produced in Mieso is sold on an individual basis. This is because, the amount of sesame produced is low. Hence, marketing is also not a problem. With the farmers' interest of expanding the area under sesame, it will be timely that issues related marketing need to be addressed. This is because the currently raised expectations of farmers may be preempted and the future expansion of sesame production may be affected. About 3 months ago, the widely grown red type sesame, was sold at 400 birr/qt. Farmers are now keen to expand sesame production in the future. Therefore, with the introduction of the white sesame varieties, possibly sole cropping and expansion of sesame production in the future, marketing issues need timely focus. It is expected that short duration sorghum varieties will be widely grown. This will help release some land during one of the seasons.

The released land could either be used to grow sesame or haricot bean. However, the assumption is with the higher prices of sesame, most of the land may be allocated to sesame. The other advantage for sesame expansion in Mieso is the closeness to any of the market outlets (Addis Ababa or Dire Dawa). The other big advantage is that sesame produced so far in Mieso is purely organic.

Areas which need to be addressed	Potential interventions	Responsibilities/tasks
Price fluctuation during and after harvest	Organize cooperatives to buy and sell sesame. (Currently however, this may not be an issue because the quantity is small).	Woreda Cooperatives Office. IPMS - TA
Poor quality (grain colour and oil content) of the current variety	Change local varieties with white improved varieties like <i>Adj, Tate, Hirhir</i> , and others.	Mieso Agricultural Research Sub-Centre/Melka Werer OoPRD-Extension Team IPMS – TA
Mieso is less known for sesame production	Once production of sesame takes off, link to bigger sesame traders	Regional Marketing Agency IPMS - TA
Lack of market information	Avail market information	Regional Marketing Agency, Woreda OoPRD/Woreda Cooperatives Office IPMS-TA
Low capacity of cooperatives	Strengthen cooperatives (credit, training, etc.)	Woreda OoPRD/Woreda Cooperatives Office IPMS - TA

Table 7. Haricot bean **Crop/livestock farming system**

Production		
<p>White haricot bean type is grown in the area and is locally called “Kenya”. It is an early maturing cultivar, in about 3 months. Red Wolyita type was widely grown in the area, even though it is currently out of production due to continuous drought. This is because most of the seed was planted and was lost due to the drought. Production of haricot bean is common in Mieso. It is grown intercropped with maize during June/July. Some farmers also grow haricot bean intercropped with sorghum. This means haricot bean could also be grown during the small rains. This makes it to be available twice in year time. Nearly all farmers in Mieso grow haricot bean and is also a common food in the area. It seems that the red type is preferred as a source of food in the area. Currently, price of haricot bean is very low. It is sold at around birr 100/qt. This is much lower than what it is sold for in Alaba (birr 140/qt), for example. The low price of the crop is discouraging farmers from expanding their production. Currently, production is small and most of what is produced is consumed at home. However, if price of haricot bean become encouraging, farmers contacted during the PRA have shown interest in increasing haricot bean production. Unlike in other places, haricot bean could occasionally be fed to livestock. It is boiled and fed to weak animals or dairy cows. Haricot bean has an average yield of between 7-10 qt/ha and requires a seed rate of about 80-100 kg/ha.</p> <p>Currently, Mieso Sub-Centre is conducting on-station adaptation trials on two varieties. The Center has a plan to expand this adaptation trial to on-farm conditions. Farmers will then have the chance to see and choose the varieties they want in relation to market provided the price becomes encouraging to farmers. The Sub-Center has limited linkage with farmers in the area.</p>		
Areas which need to be addressed	Potential interventions	Responsibilities/tasks
Shortage of rainfall	Early planting	Woreda OoPRD – Extension Team, IPMS - TA
Pest damage	Good management of fields and use of appropriate chemicals	Woreda OoPRD – Extension Team, IPMS - TA
Poor storage life of haricot bean	Introduce modern post harvest technologies	Woreda OoPRD – Extension Team, IPMS - TA
Small production due to low price	Encourage contract farming opportunities	Regional Marketing Agency, Woreda OoPRD – Extension Team, IPMS - TA
Preference of well drained soils	Early planting/avoid waterlogged areas	Woreda OoPRD – Extension Team, IPMS - TA
Input supply		
<p>Farmers use locally available planting material. Farmers do not apply fertilizer. Red Wolyta is more expensive than the white type. This is because farmers prefer the red type than the white one. Manure is also not applied because it will enhance vegetative growth and extend time of maturity. At which time, rainfall may stop and cause loss of production. The area is known for its recurrent drought. The Agricultural Research Sub-Center has been working on adaptation experiments using two white haricot bean types, known as Awash Melka and Mesika varieties. The Sub-Centre is planning to expand adaptation on-farm trials on these and other varieties at which time farmers will have the chance to see and select types of their preference.</p>		
Areas which need to be addressed	Potential interventions	Responsibilities/tasks
Poor linkage of	Research and Woreda	Mieso Agricultural Research sub-

farmers with research	OoPRD need to facilitate more linkages through more field days, on-farm experimentation, etc. (There is the attempt already but it is not strong)	centre/Melkassa Research Center,
Lack of improved seeds of export quality	Introduction and on-farm multiplication haricot bean by farmers	Mieso Agricultural Research sub-Centre/Melkassa Research Centre, Woreda OoPRD/In put supply Team IPMS – TA
Lack of improved post harvest technologies introduced	Introduction of improved post harvest technologies introduced	Mieso Agricultural Research Sub-Center/Woreda OoPRD-Extension Team/In put supply Team IPMS – TA
Credit		
There are no credit institutions in Mieso.		
Areas which need to be addressed	Potential interventions	Responsibilities/tasks
Absence of credit institution	OoPRD to help facilitate the coming of credit institutions Strengthen service cooperatives.	Woreda OoPRD IPMS-TA
Marketing		
Marketing of haricot bean is done individually as is the case for other crops. Currently, the local price for haricot bean, in Mieso, is about 100 birr/qt. Farmers are now discouraged because of the low price. The amount of haricot bean produced is very low. However, if contractual arrangements are made and prices increase, farmers will be interested to expand production.		
Areas which need to be addressed	Potential interventions	Responsibilities/tasks
Low production	Encourage increased area and take off through introduction of market demanded varieties	Regional Marketing Agency, Woreda Cooperatives Office, Woreda Extension Team IPMS-TA
Lack of knowledge of market demanded haricot bean varieties	Link producers and buyers for meeting quality standards (Contract farming)	Regional Marketing Agency, Woreda OoPRD/Woreda Cooperatives Office IPMS-TA
Lack of storage facilities	Avail and train farmers on appropriate post harvest technologies and IPM	Mieso Agricultural Research Sub-Center/Woreda Extension Team IPMS-TA
Market fluctuation	Strengthen cooperatives	Regional Marketing Agency, Woreda OoPRD/Woreda Cooperatives Office IPMS-TA
Lack of market information	Avail market information	Regional Marketing Agency, Woreda OoPRD/Woreda Cooperatives Office IPMS-TA

Table 8. Chickpea		Crop/livestock farming system
Production		
Soils in Mieso are not as heavy as are in the central highlands; however, farmers are used to planting chickpea in those soils, using residual moisture. Land preparation is done by ox. Productivity of this crop is low. Farmers do not use of fertilizers and pesticides for this crop. Because of the unreliability of rains in Mieso, chickpeas also fail to produce grain. Area allocated for chickpea is also small.		
Areas requiring attention	Potential interventions	Responsibility/task
Poor yield	Select short seasoned but better yielding varieties for market (Kabuli or Desi types) and use of inoculums	Debre Zeit Research Centre (DRC)/EARO, National Soil Laboratory (NSL), Mieso Sub Research Centre, OoPNRD IPMS - TA
Cut worm attack (cuts stem), Pod borer (at later stage)	Select resistant varieties and appropriate planting dates and chemical use (dressing and direct application on plants)	DRC/EARO, ICARDA – TA OoPNRD, IPMS - TA
Input supply		
There are no improved varieties used, instead local planting materials are used. The problem with this PLS is that it is considered a drought stricken area and no input of improved varieties are available. Fertilizers are not used (see production). Inoculums for different legumes can be made available by National Soils Research. There has already been research made to see the efficacy of this inoculum. The amount needed for a hectare is at about 0.5kg/ha. However, one has to bear in mind that the area is drought affected and hence the effects need to be studied in the research sub centre before embarking it to a wider use.		
Areas requiring attention	Potential interventions	Responsibility/task
Improved seed (Kabuli/Desi) not available	Develop farmer to farmer seed multiplication	DRC/EARO/ ICARDA – TA OoA, IPMS - TA
Inoculums supply	Increase supply of inoculums on experimental basis	National Soils Research Center, IPMS - TA
Credit		
There are no credit institutions in Mieso to facilitate financing chickpea or even other commodities' extension.		
Marketing		
Little of chickpea is produced. What ever is left from consumption is marketed on an individual basis.		
Areas requiring attention	Potential interventions	Responsibility/task
Little produce, low price	Increase area under chickpea and identify markets	Regional Marketing Agency, Woreda OoPNRD, IPMS - TA
Price fluctuations between years	Increase role of cooperatives, Creation of marketing groups	Cooperatives, Woreda OoPNRD, IPMS - TA
Storage (weevil) problems	Dressing of seeds, harvesting at appropriate time, use of organic control (eg. Neem)	DRC/EARO, Woreda OoPNRD Extension, IPMS - TA

Table 9. Goat (Meat)**Both Farming Systems****Production**

Twenty nine (over 78%) of the PAs in Mieso woreda belong to the crop/livestock farming system, while 8 (22%) of the PAs belong the pastoralist system. The priority marketable livestock commodities are the following as ranked by the community and staff of Office of Pastoralist and Rural development. Livestock production plays very prominent role in the lives in both crop/livestock and the pastoral farming system communities in Mieso woreda. Goat is one of the most saleable livestock commodities in the woreda. Goat management in the pastoral farming system is characterized by extensive system of production. The goat breed mainly reared is local. Goats graze and browse a large area of land that are usually of marginal and unsuitable for other agricultural use. They roam freely either mixed with sheep or alone. As the community use the milk from goat the kids/young goats/ are kept separate. The main feeds of goats include tree leaves, shrubs, grasses and related plant species. In the crop/livestock farming system, livestock production is well integrated with crop cultivation. As is the case for the pastoral system, goat is the most important animal. Goat production mainly focuses on extensive system of production. Here, the number of goats per household is smaller than the pastoralist system. Beginning from early wet season (March) till the crops on the field are harvested (December), goats are let to graze/browse freely in the nearby hillsides, range land and in the remaining grazing areas. But in the dry season (December to February), they freely roam on crop residues in the fields with other animals. The main feeds of goats include tree leaves, shrubs, grasses, chat (*Catha edulis*) left over, household food left over and crop residues. In few instances some farmers may castrate male goats for the purpose of fattening. In these particular households, it is not uncommon to feed goats with supplementary feeds (e.g. grain). Goat provides its owner with various products /milk, meat, manure and offspring/ and socio-economic/asset and security/ and socio-cultural benefits. Goats give birth through out the year but most kidding occurs in wet season. As to the survivability of kids it is the one that is born in wet season survive better than those born dry season and are mostly twins.

Areas which needs attention	Possible intervention	Responsibility
Predator attacks /jackals attack on kids up to 3 months of age/	Training to control the predator attack by keeping the kids near home	OoPRD, -Extension Community
Grazing land shrinkage and lack of range management practices	Establish communal range land management practice, Training the community and the staff. Develop improved forage, Cultivate multipurpose crops (sweet potato, cowpea, pigeon pea and Lablab). Establish applicable indigenous fodder plants /Acacia/ on the farm boundary and homestead	OoPRD, -Extension, Range & infrastructure dev't, Community IPMs-TA
Shortage of water as a result of continuous drought	Training and support to promote communal, Development of individual and community managed development of water harvesting schemes, Conservation of crop residues	OoPRD NGOs, OWRD, IPMS
High mortality of kids under 3 months of age	Improve kid rearing practice Better management to pregnant and lactating does, Promote better health	OoPRD-Extension, Veterinary, production and

	care, Abandon milking the does during critical feed shortage period Promote the use of foster mother for orphan kids, incase the mother dies	marketing OARO IPMS
Goats, if not managed properly could bring about environmental degradation	Halt the indiscriminate cutting of indigenous <i>Acacia</i> species, Foster the NRM practices, Match livestock resources with carrying capacity of the range (grazing) land, undertake soil and water conservation	OoPRD,NRM IPMS OARO
Conflict with neighbouring tribes	Use indigenous knowledge (elders) to manage conflicts, Training on joint resource use and management	Federal and Regional governments, OoPRD, Elders and other community institutions
Abortion by pregnant does	Better care to pregnant does Manage separately the pregnant does	OoPRD OARO, IPMS
Uncontrolled natural breeding	Training to maintain & use of best animals	OoPRD, IPMS-TA
Disease problems	Promote veterinary services (Encourage paravets, public and/or community service givers)	OoPRD, OPC/oromiya pastoralist commission/
Wide spread of noxious weeds like <i>Parthenium hysterophorus</i> L. (Congress weed) and <i>Prosopis infliflora</i> (Exotic <i>Acacia</i> spp.)	Promote strong extension support Train staff and community, Mobilize the community for joint action, Train staff and community how to make best use of <i>Prosopis juliflora</i> as feed for goats esp. in the dry season	OoPRD Community, Elders, CBOs IPMS - TA

Input supply

Generally goat production system is characterized by low-input system and mainly traditional. No such targeted and market oriented production exists in this PLS.

Areas which needs attention	Possible intervention	Responsibility
No information	Training of extension staff to deliver information	OoPRD, IPMS, OARO
Lack of breeding bucks	Training to community to maintain the best type and number of bucks	OoPRD, IPMS, OARO
Social problems to develop improved forages in the farmlands (damage by camels and other animals)	Training and awareness creation to the community	OoPRD, IPMS, OARO
Lack of training	Training to community and staff	OoPRD, IPMS, OARO
Absence of fodder bank	Training and support Provision of fodder planting materials	OoPRD IPMS
Lack of research and development support	Initiate research and development schemes pertinent	OoPRD, OARO, IPMS

	to the localities	
Lack of credit services	Work out possible Means so that community get financial services	OoPRD, OoARD IPMS
Insufficient veterinary support	Improve the vet service	OoPRD
Marketing		
Goat sale takes place throughout the year. But the majority of goat sale occurs in wet season. The farmers and pastoralist (both farming systems) use livestock markets in the nearby towns like Mieso, Asebot, Kora, Mullu and Bordode. The goat market is improving since the last few years. This is because of the involvement of goat meat exporters like ELFORA, Mojo and Metehara export abattoirs		
Areas which needs attention	Possible intervention	Responsibility
Middlemen interference	Training to the pastoralists Develop their negotiation skills	Woreda Adm. OoPRD
Lack of cooperative organizations at the pastoralist level	Cooperative organization and development	OoPRD-coperative desk, IPMS
Unavailability of exporters /trader agents/ at Kora market and the low goat price	Improve linkage, Improve the infrastructure (construction of accessible road to Kora town)	OoPRD-coperative desk, IPMS, Regional Marketing Office, Woreda Administration and office of rural road construction
Lack of linkage	Support to have linkage	OoPRD, IPMS
Lack of capacity of both farmers and pastoralists	Build the capacity of farmers and pastoralists	OoPRD IPMS, BoARD
Lack of market extension	Training and support	OoPRD, IPMS
Lack of market information	Training and networking	OoPRD, IPMS
Conflict hampering pastoralists from using market places like Bordode	Conflict resolution,	Local elders from both communities, Federal and Regional administration, OoPRD, IPMS - TA

Table 10. Cattle fattening		Crop/Livestock farming system
Production		
Some farmers/agropastoralist undertake this activity. Local cattle breed are used which are mostly purchased from the market. The culture is not well developed. The knowledge is believed to be acquired from the neighboring highlanders. Cattle fattening has existed for a long period of time and has been a tradition. Most common supplementary feeds are undefoliated sorghum stover, crop (sorghum/maize) thinning, salt, household left over and boiled bean. Some of them use shades. Fattening an ox could take up to two years. This is because of the poor quality of feed quality but also the oxen are used for ploughing. With the high number of cattle in the PLS and the reputation of the high quality meat coming from eastern highlands in Addis Ababa, there is a potential that farmers may benefit from this venture. The good potential for this exercise is that people are used tether their livestock.		
Areas which needs attention	Possible intervention	Responsibility
Less attention to cattle for fattening. Cattle are left to graze together with the rest of the herd	Training to improve feeding and management of market oriented fattening	OoPRD IPMS
Extended period of fattening/2 years/	Training to focus on market-oriented short cycled fattening	OoPRD IPMS
Use of the animals for draught power	Training on proper feeding and management	OoPRD, IPMS
Feed shortage	Feed conservation, Proper grazing land management Supply improved foddors' planting materials	OoPRD IPMS OARO
Lack of knowledge	Training to community and staff	OoPRD,,OARO, IPMS - TA
Shortage of water due to continuous drought	Training to promote communal/individual water harvesting program, Proper conservation of crop residues	OoPRD, NGOs, OWRD, IPMS -TA
Conflict in the use of communal grazing lands	Put conflict management in place through the intervention of local (tribal) elders Training on joint resource use and management	Federal and Regional governments, Local elders, OoPRD, IPMS - TA
Looting by neighbouring tribes	Legal measures and /or conflict resolution measures through local elders	Federal and regional government, Elderly, Local institutions
Poor extension support	Supply of demonstration materials, Capacity building to the extension office	OoARD OARO IPMS - TA
Input supply		
There is low input supply system on cattle fattening except for veterinary drugs which are rarely used.		
Areas which needs attention	Possible intervention	Responsibility
Disease problems	Improve vet services through including the private sector, Improve manpower through	OoARD IPMS - TA

	training paravets	
Lack of training	Improve training opportunity to staff to initiate innovative input supply system	OoARD, IPMS - TA
Limited support in improved fodder development	Training and promote the supply of the planting materials of fodder crops	OoARD IPMS NGOs
Credit		
Absence of crediting institutions for fattening schemes.		
Areas which needs attention	Possible intervention	Responsibility
Limited involvement of credit institutions in financing dairy and fattening operations	Engage more finance institutions to provide credit for dairy and meat production	Extension, micro finance institutions, IPMS
Marketing		
Most often producers use nearby town markets like Mieso and Asebot. Well fattened animal fetch from 3,000-4,000 birr. The prices offered are not small but what matters is how often a farmer sells an animal and how long it takes him to that money. Hence improvement will be needed to increase the number of fattened livestock and the regularity of the sell. Training will be strongly required to improve feeding and therefore increase the intensity of output.		
Areas which need attention	Possible intervention	Responsibility
Lack of organization (absence of marketing group)	Training Organizational support and linking with the Regional Marketing Office	OoPRD, OARO, IPMS - TA
Lack of knowledge on timing of fattening	Capacity building of farmers and extension workers	OoPRD, IPMS - TA
Lack of market information	Training, ,link with bigger traders	OoPRD, IPMS - TA
Middlemen interference	Training and strengthen cooperatives to buy and sell members' fattened livestock (institutional support), link with bigger traders	OoARD, IPMS - TA

Table 11. Cattle Milk	Crop/livestock farming system	
Production		
Milk production is at its peak in the wet season. Milk is entirely produced from local cows. The yield varies from 1.5 to 2.5 litres per day and the lactation length ranges from 6 to 9 months. It is the women who milk their cows, mostly in the morning and evening. Milk handling and processing still primitive and requires attention to improve it. Currently, some attempts are underway to establish one women's milk group in Mieso town. Some rooms were under construction to enable process and sell milk by women's group (Afosha women's group). Cream separator and other necessary equipments. No training has been given to these women's group as yet and there should be capacity building as soon as possible.		
Areas which needs attention	Possible intervention	Responsibility

Lack feed resources, especially during the dry season	Training to improve feeding and management	OoPRD IPMS - TA
Extended period of calving/2 years/ as result of feed shortage	Training to focus on market-oriented dairy production	IRLI Debre Zeit Research Centres, OoPRD, IPMS - TA
Uncontrolled breeding	Training on Reproductive management	OoPRD, IPMS - TA - TA
Feed shortage	Feed conservation Proper management of pasture land Supply improved fodders' planting materials	OoPRD IPMS - TA OARO
Lack of knowledge on the side of both farmers and DAs	Training to community and staff	OoPRD OARO, IPMS - TA
Shortage of water as a result of continuous drought	Training to promote communal/individual water harvesting program Properly conserve crop residues	OoPRD NGOs, OWRD, IPMS
Conflict with neighbouring tribes contributing to shortage of grazing lands	Conflict resolution and Training on joint resource use and management	Federal & Regional governments, elderly, OoPRD
Poor management and lack of feed supplement to pregnant and lactating animals	Training on improved management and feeding	OoPRD IPMS OARO
Looting by neighbouring tribes	Traditional resolution/Legal measures	Federal and regional government and the elderly
Poor extension support	Training, Demonstration materials, Capacity development to the office	OoARD OARO IPMS
Input supply		
Low input out put system of production. No credit service to add value on fresh milk. However, recently some rooms were under construction and it is also expected that some milk processing equipments will soon be available. It is essential that with the number of livestock in the area that milk processing and handling cooperative/groups be established in this PLS. IPMS may also contribute towards this in terms of training technicians and farmers in milk processing and handling. There is facility and manpower at ILRI Debre Zeit for this purpose.		
Areas which needs attention	Possible intervention	Responsibility
Disease problems	Training to community, Improve vet services, Improve manpower	OoARD IPMS
Lack of training	Improve training opportunity to staff	OoARD, IPMS
Limited support in improved fodder	Training and promote the supply of	OoARD

development	the planting materials of fodder crops	IPMS NGOs
Marketing		
<p>Mostly the produced milk is sold in Mieso, Asebot, Kora, bordode and Asbeteferi towns. The price fluctuates from season to season. Price increases in the dry season than during the wet season this is because calving takes place during the wet season and large number of producers competes for the existing small market. During the dry season however milk production is small but is expensive. Besides, the milk producers lack capacity and hence have limited milk processing practices.</p>		
Areas which needs attention	Possible intervention	Responsibility
Lack of organization	Training and organizational support and forming milk marketing groups/cooperatives	OoPRD, ILRI Debre Zeit Research Centre, IPMS - TA OARO
Lack of capacity on the side of farmers and development agents	Capacity building of farmers and development agents	OoPRD, IPMS
Milk supply is seasonal mostly confined to the rainy season (feed is available and a breeding is season)	Introduce improved feed supply for year round supply	OoPRD
Parthenium weed is likely to affect milk consumption due to bad test	Introduce cut and carry feeding system to avoid the weed	OoPRD IPMS
Consumer hesitation due to milk quality and hygiene that comes from rural farmers	Milk collection and inspection through marketing group formation; Training of farmers on tethering and milk processing and handling	OoPRD, ILRI- Debre Zeit, IPMS - TA

Table 12. Poultry		Crop/livestock farming system
Production		
Poultry production is very traditional and not well organized. Hence, its management is often neglected as a result poultry are forced to scavenge around homestead and no follow up of vaccine, housing, etc. is done. The poultry production practice is with the use of local breeds mainly and the use of improved breeds is a new phenomenon and has just started. Fortunately, some of them have managed the stocks better and evolved out successful.		
Areas requiring attention	Possible Interventions	Responsibility
Disease outbreak	Training on disease control	OoPRD, IPMS-TA
Small number of stock supply	Improve the supply of stock	Oromiya BoARD, OoPRD, IPMS - TA
Predator attack	Exercise proper care and management	OoPRD, Debre Zeit Research Centre/EARO, IPMS - TA
Lack of drug and vaccine supply	Devise mechanisms to improve drug and vaccine supply	BoARD, OARI, MoARD IPMS-TA
Lack of proper awareness about improved breeds of stock management	Training on improved poultry production, breeds and multiplications	Oromiya BoARD, OARI, OoPRD, IPMS-TA
Training mainly addresses women farmers	Gender and Development training to staff/experts and farmers	OoPRD, IPMS-TA
Limited credit services	Advocacy work so that the region opens on micro finance institution in the woreda	Oromiya BoARD, OoPRD, IPMS financial support through Oromiya Credit and Saving Bank
Input supply		
The main inputs like improved chicken are in poor supply and the delivery system is through the office of pastoralist and rural development. Not only this, the package is incomplete and small in number to bring about change in livelihoods of farmers. On the other hand, the approach is stock supply without vaccines and other drugs. The closest poultry breeding centre to Mieso is Nazreth. There is a need that for this PLS to work closely with this breeding centre. In order to encourage farmers to be engaged in poultry production, inputs like day old chicks, cocks, hay boxes, chick run and other equipments need to be available in sufficient quantity. Private small scale or cooperatives level poultry production could be encouraged, provided there is sufficient market for the produces. Other alternative innovative ways of poultry input supply will be essential.		
Areas requiring attention	Possible Interventions	Responsibility
Small supply of stocks	Design means to improve the delivery system	BoARD, OoPRD IPMS-TA
Veterinary services and vaccines not included in package	Encourage, support and Link up with the private drug supplier	BoARD, OoPRD IPMS-TA
No training to staff and farmers	Training to staff and farmers on innovative ways of poultry input supply	BoARD, OoPRD IPMS-TA
Lack of information on improved breeds	Support in information networks	BoARD, OoPRD IPMS-TA

Lack of down payment money and expensiveness of the chicken	Avail small credit fund	BoARD, OoPRD IPMS-TA
The extension excludes the women during training	Address both women and men while training takes place	OoPRD-Extension, Vet. Section, IPMS-TA
Marketing		
The marketing mainly focuses on holidays. But there are potential market routes via rail and asphalt road both ways. The other important thing to be taken into account is the egg from the improved breeds is bigger and fetches better prices even in the local markets. The market potential of both chicken and eggs need to be studied.		
Areas requiring attention	Possible Interventions	Responsibility
Sale of chicken and eggs is mainly during holidays	Training on market focused production (Spread the sale across the months in the year and give more emphasis on quality chicken production)	BoARD, OoPRD IPMS-TA
Lack of capacity of both farmers and extension workers on market orientation	Improve their capacity through training	BoARD, OoPRD IPMS-TA
Lack of linkage and information	Training and information provision to farmers	Oromiya Marketing Office, BoARD, OoPRD, IPMS - TA
No credit institution in the worda	Advocacy works	BoARD, OoPRD IPMS-TA

5. Outline of Program of work for Mieso PLS

5.1 Priority Commodities and Natural Resource Management Technologies

During the project's first year attention will be focused on innovative technology practices and institutional innovations for the following priority commodities and their supporting NRM technologies.

Pastoral Farming System

Livestock: Goat/meat/ Production

NRM technologies: Water harvesting and range rehabilitation and forest and bush conservation and management

Mixed Crop/Livestock Farming System

Crops: Sesame, haricot bean, chickpea

Livestock: Goat/meat/ Production and Cattle Fattening and Dairy and Poultry

NRM technologies: soil and water conservation, water development/pond development, river diversion, spate irrigation, improved forage development, seedling preparation

Drought is a major problem in Mieso. As a result water harvesting need to be given more focus. However, water table is deep and it is quite expensive to develop water. Still there is huge seasonal water source in most of the years which could be harvested if appropriate water harvesting mechanisms are put in place.

Based on the knowledge captured and the lessons learned during the initial implementation of the innovation program some of the priorities commodities may be dropped, while others may be added.

5.2. Knowledge management-general /RBM code 100 series/

To improve the capturing and sharing of knowledge on priority commodities and the supporting NRM technologies in the PLS, the state of knowledge and knowledge requirement will have to be assessed on a continuous basis during the project life. The initial PRA and the subsequent assessments will form an integral part of this process. Several information gaps that deserve attention have already been identified in relation to each priority commodity. Annex 1 presents the knowledge gaps pertaining to each priority commodity.

The knowledge will be synthesized and assembled at the federal level in a resource information center using electronic data base formats. To share this knowledge with institutions and communities, various processes and mechanisms will be used including the distribution of appropriate printed materials/ manuals, training materials, posters, leaflets in the local language/, radio programs, local exhibitions, etc.

To link the PLS with the Resource Information Center, electronic linkages with the Woreda Agricultural/Pastoral Development Sector will be established. This effort will

have to be integrated and synchronized with other activities in this field i.e. Woreda Net, School Net, and Agri Net. Woreda Net is operational in Mieso and equipments are based in the woreda Administration office. The process is going on now. However the link is not yet revitalized.

Simultaneously innovative ways of creating a culture of knowledge capturing and horizontal knowledge sharing across the actors in the PLS and between the actors at PLS and the regional and federal level will have to be developed- see section 3 on capacity building.

Table 13. Project Support for PLS Knowledge Management System

Activities	Target	Responsible
(100) Continuous assessment of current state of knowledge requirements based on field work and meetings	Woreda institutions	Woreda institutions involved in extension, input supply,
(100) Collection and synthesis of data for PLS (GIS) database	Woreda institutions	Project staff with woreda pastoralist office
(100) Preparation of extension materials and methods and training materials*	Woreda institutions and farmers	Research and development partners with the help of project funding
(100) Purchase and installation of computers and hard ware	Woreda Pastoral development office, cooperative office, NRM, Mieso agri. Research sub station	Project staff
(100) Training of staff in electronic knowledge management**	Office heads, team leaders, and extension supervisors	Project staff

*See the details in section 5.4- indicated with code 100

** Training is suggested on basic computer utilization, data management including introduction to GIS, communication systems and technical support.

5.3. PLS Public institutional capacity building /RBM code 200 series/

To introduce the project, and to train public institutional staff in innovative technology transfer methods, inter-institutional collaboration and cross cutting themes for gender and environmental assessment, various trainings will be conducted for woreda staff/ materials for such training will be prepared by the project with the help of consultants and contributions from the project partners / To stimulate the integration with private institution staff, some of the staff of the private institutions will also be involved in this training . The training will be continuous during the project life and effectiveness of the training will be assessed regularly. Lessons learned will become an integral part of follow up training events. One of the critical trainings to be given will deal with innovative methods of agricultural institutional service delivery.

Table 14. Potential woreda and Regional staff/Training of Trainers/to be included in the innovative methods training

Woreda office	Number
Extension team leader and supervisors	4
Office head of OoPRD	1
OoPRD team leaders	7
Cooperative office	4
Office of food security and DPPC	1
Women affairs office*	1
Women's associations'*	1
HIV/AIDS office*	1
Anti- HIV/AIDS clubs*	2
NRM	2
Mieso Agri. Research sub center	1
Home agents*	1
Regional office/zonal office	
Experts at the extension Dep't of the zonal /regional BoARD	4
Research and Extension liaison of OARO/ Melka Werer and Melkassa centers/	2

*These trainees are to be included only in the training on gender, HIV/AIDS and environment

The trained woreda staff /TOT/ are expected to introduce the innovative concepts to the Development Agents in the FTCs, who in turn will use these concepts during their daily work with the farmers/pastoralists and communities (see section 5.4). Use of these innovative methods by FTC staff will be mentioned and evaluated by the project staff and form the basis for adjustment in the TOT trainings.

Besides the building of the capacity of the woreda FTC staff in the use of innovative methods and institutional arrangements, technical training on the priority commodities, including new production methods/techniques, farmer/group/cooperative based input supply and marketing systems will be provided /materials for such training will be prepared by the project with the help of consultants and contributions from the project partners/. Details for such training are included in the PLS sustainable livelihood development activities described in section 5.4.

Table 15. Potential woreda staff to be included in technical training of priority commodities

Office/Team at OoPRD/	Priority commodity	Number
Pastoral development sector	NRM	2
Extension team	Sesame, haricot bean, chickpea Goat, dairy, fattening and poultry	6

Range and Rural Infrastructure Development team	Goat, dairy, fattening and poultry production	2
Animal health, production and marketing team	Goat, dairy, fattening and poultry production	4
Cooperative department	Sesame haricot bean and Chick peas Goat, dairy, fattening and poultry	4
Forest resource development and conservation team	Sesame haricot bean and Chick peas Goat, dairy, fattening and poultry	2

Natural resource management is crucial in the woreda. In addition to the innovative methods and technical aspects of training, specialized training will be given to appropriate woreda staff on sustainable management and development of natural resources, including soil and water conservation, water resource development and conservation for irrigation (ponds, river diversion and spate irrigation).

Table 16. Potential woreda staff to be included in NRM training

Teams/Offices	Number
NRM and Forest Dev't and conservation	2
Pastoral dev't sector	4
Water resource dev't office	2
Irrigation team	2

An integral component of the capacity development activities at the woreda level are the development of the FTCs. In the initial phase the project will support selected FTCs with printed materials and demonstration materials/see 5.2/ in support of the priority commodities and supporting NRM technologies. (See section 5.4 for details).

While many capacity building activities have been undertaken by numerous projects operating in Ethiopia, the actual use of the increased capacity by the staff in their daily work is often minimal because of a host of other bottlenecks and a lack of reward for those staff, which have made progress despite the presence of these bottlenecks.

The project will introduce various other capacity building initiatives at the PLS level to alleviate some bottlenecks in order to facilitate the introduction of technologies and institutional innovations. This will include the supply of credit funds and financial and technical support for market studies and linkages for priority commodities and operational cost of experts to supervise and guide the DA staff at FTC level. These activities are integrated in the PLS sustainable livelihood activities/see section 5.4/.

The project will furthermore set aside some funds for rewarding experts and FTC staff, which have made good progress in technology and institutional innovations. One potential reward may be in the form of visit places of interests/ this will be introduced in the second project year/.

Finally, an integral part of the PLS building support is to create a learning system between the region and the PLS and to create an inter-institutional learning system at the woreda and FTC level. To facilitate this arrangement the project has established Regional and woreda level advisory and learning committee /RALCs and WALCs/. A budget will be made available to use /develop various learning mechanisms including field visits and small workshops. An integral part of this learning will be the sharing of knowledge between the region and institutions concerned.

Table 17. Project support for PLS general capacity building support*

Activities	Target	Responsible
(200) TOT training and follow up in innovative methods	Woreda & 5 FTC staff	Project staff and consultant
(200) TOT training and follow up in gender	Woreda & 5 FTC staff	Project staff and consultant
(200) TOT training and follow up in environment assessment	Woreda NRM staff and 5 FTC staff	Project staff and consultant
(200) Development of a reward system for institutional staff	Experts & 5 FTC staff	Project staff, WALC and RALC
(200) RALC & WALC learning	RALC & WALC	Project staff

5.4. PLS Sustainable Livelihood development/RBM code series 300/

The project will concentrate its efforts on introducing innovative technology (practices) and institutional innovations with farmers/pastoralists and communities near Farmer training centers (FTCs) which have a potential for the identified market oriented priority commodities and NRM technologies. These potentials were identified by woreda staff during the Mieso PLS level workshop and will be reassessed during the initial implementation phase with the nearest FTCs.

Table 18. FTCs with potential for priority commodities and NRM technologies

FTC	Sesame, Haricot bean and chickpeas/NRM	Goat	Milk	Beef	Poultry
Melkhaora	X	X	X	X	X
Gena	X	X	X	X	X
Odaqeneni	X	X		X	X
Hundeemisoma	X	X	X	X	X
Oda bella	X	X		X	X

The most important NRM activities would be:

- Soil and water conservation
- Water harvesting
- Terraces and check dams

Grazing land rehabilitation and management
 Development of multipurpose herbaceous legumes and tree fodder legumes

The following sections deal with activities on the priority commodities, which are envisaged to be accomplished within the first year of the project's life.

5.4.1. Sesame (Mixed crop-livestock farming system)

Marketing

Marketing of these crops mainly take place in the woreda towns itself. The predominant buyers are the local traders themselves. Momentarily the market for Sesame is quite lucrative. Because of the size of area that sesame covers a small area production is small and hence the marketable quantity is small also. The increase in price of sesame recently seems to have encouraged farmers. Hence, there will be an expected increased interested in the future. At this juncture the extension should be vigilant and try to assess the need for better yielding and short seasoned varieties from research or else.

Table 19. Project Support for improving Sesame marketing

Activity	Target	Responsible
(400) Assess on sesame, marketing, profitability and market chain	In and around 5 FTC	Mieso/Melka Werer/, IPMS – TA, OARI
(200) Training on group marketing (importance and group organization)	Woreda cooperative staff/3/ and 5 FTC staff	Regional Marketing Office, IPMS - TA
(300) Establish marketing information system at woreda level	5 FTC and DA posts	Woreda experts, Regional Marketing Office, Woreda Cooperatives, IPMS staff,
(300) Training and follow up of program (in FTCs) in marketing group formation	Farmers in and around 5 FTCs	FTC staff guided by woreda experts, IPMS - TA
(300) Facilitate contract farming on sesame	Farmers in and around 5 FTCs	Woreda cooperative experts, IPMS - TA

Input Supply

There is no formal input supply system in the woreda. Seed supply is solely based on farmer to farmer exchange. Use of own seed and sometimes purchased from markets is very common. The entire germplasm in use are local landraces. Innovative input supply system need to be encouraged for these crops in order to have a sustainable input supply system. Short duration, white sesame varieties need to be introduced and farmer to farmer seed supply system need to be strengthened as it is a means of sustainable seed supply system. The Mieso Research Sub centre is a good link towards obtaining these varieties.

Table 20. Project support for sesame input supply

Activity	Target	Responsible
(400) Assess the existing input supply system of sesame to devise innovative supply system	Woreda OoPRD, Zonal and Bureau of ARD and farmers near and around FTCs	Students, Melka Were, Sul Research centers
(300) Provide credit fund for interested farmers for sesame input supply	Farmers around 5 FTCs.	(OCSB) with project funds
(200) Facilitate the supply of different sesame varieties at FTCs and the Research Sub-Centre for demonstration purposes	5 FTCs	Melka Werew Research C Mieso Research Sub-Cent Woreda OoPRD, IPMS - T
(300) Travel seminar to areas where there is rich experiences of Sesame production	Selected farmers from 5 FTCs	Woreda OoPRD, IPMS - T

Production

The production of Sesame, is small scale. A few of them practice a sole cropping. Most often farmers intercrop these crops with sorghum and maize. However in the past 2 years the demands from the farmer side is increasing because of the better prices. Innovative farmers need to be selected and introduction of these short seasoned and market demanded varieties tested on farm in the form of demonstration materials. This could lead to increase area under this crop and help contribute to improving livelihoods of farmers.

Table 21. Project support for the production of sesame

Activity	Target	Responsible
(400) Assess sesame production system in Mieso	5 FTCs	Students, Woreda OoPRD, IPMS - TA
(200) Training on agronomic practices of sesame	Woreda extension team/crop production and protection experts-2, supervisor / and staff of FTC	Melkawerer/Melkasa, Oromiya BoARD, OARI, IPMS-TA
(200) TOT on general of sesame agronomy including disease and pest control techniques	Woreda crop production and protection experts/2/ and 5 FTC staff	Melka Werer Research centers, OARI and IPMS - TA
(300) Farmers' training on general agronomy of sesame including disease and pest control techniques	Farmers around 5 FTCs	FTC staff guided by woreda/project staff
(200) Training on water harvesting and moisture management (e.g. tie ridge)	Woreda extension team/crop production and protection experts-2, supervisor / and staff of FTC	Melka Werer/Melkassa/OARI, Oromiya BoARD IPMS-TA

(300) Farmers' training and follow up in water harvesting and moisture management	Farmers' around 5 FTCs	FTC staff guided by woreda/project staff
(300) Promotion of on farm demonstration of different sesame varieties, moisture conservation and post harvesting technologies; pamphlets, etc.	5 FTCs	Mieso Research Sub-Centre, OoPRD, IPMS - TA
(200) TOT on post harvest management and technologies	Woreda crop production/protection experts, 5 FTCs staff	Melkawerer, Oromiya BoARD, OARI, IPMS-TA
(300) Farmers' training and follow up on post harvest technologies	Farmers in and 5 FT C	FTC staff guided by woreda/project staff
(200) Improve research-extension- farmer link up	Farmers in and around 5 FTCs, Woreda OoPRD & Mieso, Melkasa and Melka Werer Agri. Res. Centers	MoARD, Oromiya BoARD, EARO, IPMS - TA

5.4.2. Haricot bean (Mixed crop-livestock farming system)

Marketing

Marketing of haricot bean is in the local market within the woreda. Production is very small and hence money from selling haricot bean is also small. The most preferred haricot bean type is the red Wolyita but due to drought it seems that it has disappeared. This land race requires 90 -100 days to maturity, while the white ones mature in about 2-3 weeks earlier than this. On the other hand, in terms of market demand, the white ones are more preferred as at now. Hence, the current conditions favour the white ones and need to be promoted. Much work is needed however to introduce the right types of varieties and convincing haricot bean traders to consider Mieso as a possible market place for haricot bean. This is because this PLS is considered as one of the most drought stricken areas in the country.

Table 22. Project Support for improving haricot bean marketing

Activity	Target	Responsible
(400) Study on haricot bean marketing, profitability including market chain	In and around 5 FTC and DA posts	Students, Mieso Research Sub-centre/Melkassa Research Center (MRC), project staff, OARI
(200) TOT on group marketing (importance and group organization)	Woreda cooperative staff/3/ and 5 FTC staff	Regional Marketing Office, Regional Cooperatives, IPMS - TA
(300) Training on group marketing (importance and group organization)	Farmers in and around 5 FTC	FTC staff guided by woreda/project staff, IPMS - TA
(300) Establish marketing	Farmers near 5	IPMS staff, woreda experts,

information system at woreda level	FTC and DA posts	cooperatives
(300) Training and follow up of program/in FTCs (in marketing group formation)	Farmers in and around 5 FTCs	FTC staff guided by woreda/project staff
(300) Encourage contract farming on haricot bean	Farmers in and around 5 FTCs	IPMs staff and woreda cooperative experts

Input Supply

There is no formal Input supply system for haricot bean. It is rather farmer to farmer based. The locally preferred Red Woliya type is even out of market because of drought. Use of own seed and sometimes purchased from markets is very common. Demonstration will be needed to introduce newly released and market demanded types to farmers. The FTCs are good avenues for this purpose. Innovative input supply system need to be encouraged for haricot bean. in order to have a sustainable input supply system.

Table 23. Project support for haricot bean input supply

Activity	Target	Responsible
(400) Study on the existing input supply system for haricot bean	Farmers near and around 5 FTCs	Students, Melkassa RC, IPMS - TA
(300) Provide credit fund for haricot bean germplasm purchase, if needed	Interested farmers around 5 FTCs.	OCSB with funds from the project
(200) TOT of experts on farmer to farmer input supply system for improved haricot bean varieties	Extension, crop production/protection and staff of 5 FTCs	OARI, BoARD and Melkasa RC, CIAT
(300) Training of farmer to farmers input supply system for improved haricot bean varieties	Farmers in and around 5 FTCs	FTCs staff guided by Crop production/protection experts
(200) Supply different haricot bean varieties, moisture and post harvest technologies, pamphlets at the FTCs for demonstration purposes	5 FTCs	Melkassa RC/Mieso Sub Centre, Woreda OoPRD and IPMS - TA
(300) Training through traveling and visit to known haricot bean growing areas for experience sharing	Selected farmers around 5FTCs	Woreda OoPRD and IPMS - TA

Production

The production of haricot bean is small scale and even low currently because of drought in the area. A few of the farmers practice sole cropping of haricot bean. Most often farmers intercrop haricot bean with maize but also sometimes with sorghum. Export type of haricot bean varieties need to be introduced in the area. There is an advantage because Mieso is so close to Melakssa, where the national haricot bean breeding/improvement is conducted.

Table 24. Project support for haricot bean production

Activity	Target	Responsible
(200) TOT on agronomy including disease and pest control	Woreda crop production and protection experts/2/ and 5 staff of FTC	Melkasa and Melka Werer research centers, Oromiya BoARD and Alemaya university IPMS_TA
(300) Farmers' training on agronomy including disease and pest control	Farmers around 5 FTCs	FTC staff guided by woreda/project staff
(200) TOT on water harvesting and moisture management (e.g. Tie ridges)	Woreda extension team/crop production and protection experts-2, supervisor / and staff of FTC	Melkawerer/Melkasa, Oromiya BoARD, OARI, IPMS-TA
(300) Farmers' training and follow up in water harvesting and moisture management	Farmers' around 5 FTCs	FTC staff guided by woreda/project staff
(200) Facilitate on farm demonstration using different export quality germplasm, moisture conservation and post harvesting equipments, inoculum for testing	5 FT C	Melkassa RC, OoPRD, IPMS-TA
(200) TOT on post harvest management	Woreda extension team experts	Melkawerer/Melkasa, Oromiya BoARD, OARI, IPMS-TA
(300) Farmers' training and follow up on post harvest management	Farmers in and 5 FT C	FTC staff guided by woreda/project staff
(200) Improve research-extension- farmer link up	Woreda OoPRD & Mieso, Melkassa RC	MoARD, Oromiya BoARD, OARI, IPMS

5.4.3. Chick pea (Mixed crop-livestock farming system)

Marketing

Among the priority commodities, chickpea is the least produced in the area. The productivity of chickpea is currently also poor. Hence, most of the produce is currently consumed at home. What ever is left from consumption is marketed locally. Most of the time rainfall fails in Meiso. However, most of the failure in rainfall may not mean that there is no rainfall at all. Instead, it is rather the rainfall does not come on time (usually comes late). Hence, even if the main rainfall fails, it may be enough to grow chickpea, even though this also depends on the type of soils. Deci types are presently produced in the area and these types normally mature in about 120 days.

Table 25. Project Support for improving chickpea marketing

Activity	Target	Responsible
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(400) Study on chickpea marketing, profitability including market chain	In and around 5 FTC and DA posts	Students, Mieso Research Sub-centre/Melkassa Research Center (MRC), project staff, OARI
(200) TOT on purchasing, storage, quality control and group marketing	Woreda cooperative staff/3/ and 5 FTC staff	Regional Marketing Office, Regional Cooperatives, IPMS - TA
(300) Training of farmers on purchasing, storage, quality control and group marketing	Cooperative leaders, farmers in and around 5 FTC	FTC staff guided by woreda/project staff, IPMS - TA
(300) Establish marketing information system at woreda level	Farmers near 5 FTC and DA posts	IPMS staff, woreda experts, cooperatives
(300) Training and follow up of program/in FTCs (in marketing group formation)	Farmers in and around 5 FTCs	FTC staff guided by woreda/project staff
(300) Encourage contract farming on haricot bean	Farmers in and around 5 FTCs	IPMs staff and woreda cooperative experts

Input Supply

There is no formal Input supply system for chickpea. It is rather farmer to farmer based and farmers use own seed or seed bought from the local market. Improved varieties of Kabuli type of Chickpea varieties like Arerti, Shasho, Harbu and Chefe could easily be introduced. Demonstration will be needed to introduce the newly released and market demanded Kabuli types to farmers. It has been reported that these varieties could yield 32 qt/ha on average, which is much higher than what is currently produced by the existing Deci types, which is around 5 qt/ha. FTCs are good avenues for this purpose. Innovative input supply system need to be encouraged for chickpea, like what is observed in Ada'a. This is where the existing farmer to farmer seed supply system would use the new improved varieties for sustainability.

Table 26. Project support for chick pea input supply

Activity	Target	Responsible
(400) Study on the existing input supply system for haricot bean	Farmers near and around 5 FTCs	Students, Melkassa RC, IPMS - TA
(200) TOT in organizing farmer/cooperative on seed production system	Crop production/protection and staff of 5 FTCs	Debre Zeit RC/EARO, Woreda OoPRD, IPMS - TA
(300) Provide credit fund for improved (Kabuli/Deci) type chickpea purchase, if needed	Interested farmers around 5 FTCs.	OCSB with funds from the project
(200) TOT of experts on farmer to farmers input supply system for improved chickpea (Kabuli/Deci) varieties	Crop production/protection and staff of 5 FTCs	OARI, BoARD and Melkasa RC, CIAT

(300) Training of farmer to farmer input supply system for improved chickpea (Kabuli/Deci) varieties	Farmers in and around 5 FTCs	FTCs staff guided by Crop production/protection experts
(200) Supply different chickpea varieties at the FTCs level for demonstration purposes	5 FTCs	Melkassa RC/Mieso Sub Centre, Woreda OoPRD and IPMS - TA
(300) Facilitate supply of inoculums for testing program, if needed	5 FTCs	National Soils Laboratory (NSL) with project funds
(300) Training through traveling and visit to known chickpea growing areas for experience sharing	Selected farmers around 5FTCs	Woreda OoPRD and IPMS - TA
(200) Supply demonstration materials including posters on pest, soil and water management, special plough (tie ridge) and inoculums, on farm seed production systems	5 FTCs	IDebre Zeit RC/EARO, NSL IPMS - TA
(300) Provide credit fund for on farm seed production if required (probably year 2)	PAs/individual farmers	OCSB with project funds

Production

Chickpea production is based on residual moisture. The production of chickpea is small scale. Once chickpea production takes up, important production problems related will be diseases (wilt, root rot, rust), insects (cut worm, African boll worm, aphids) and storage pests like weevils. It is important that improved varieties of chickpea (Deci/Kabuli) be introduced to the area to improve production. There is an advantage because Mieso is so close to Debre Zeit, where the national chickpea breeding/improvement is conducted.

Table 27. Project support for chick pea production

Activity	Target	Responsible
(200) TOT on agronomy including disease and pest control in chickpea	Woreda crop production and protection experts/2/ and 5 staff of FTC	Debre Zeit RC/EARO, Oromiya BoARD, OARI, IPMS_TA
(300) Farmers' training on agronomy including disease and pest control in chickpea	Farmers around 5 FTCs	FTC staff guided by woreda/project staff
(200) TOT on water harvesting and moisture management (e.g. Tie ridges)	Woreda extension team/crop production/protection experts-2, supervisor / and staff of FTC	Debre Zeit RC/EARO, Oromiya BoARD, OARI, IPMS-TA

(300) Farmers' training and follow up in water harvesting and moisture management	Farmers' around 5 FTCs	FTC staff guided by woreda/project staff
(200) Facilitate on farm demonstration using different export quality germplasm	5 FT C	Debre Zeit RC, OoPRD, IPMS-TA
(200) TOT on post harvest management	Woreda extension team experts (crop production/protection)	Melkawerer/Melkasa, Oromiya BoARD, OARI, IPMS-TA
(300) Farmers' training and follow up on post harvest technologies	Farmers in and 5 FT C	FTC staff guided by woreda/project staff
(200) Improve research-extension- farmer link up	Woreda OoPRD & Mieso, bre zeit RC	MoARD, Oromiya BoARD, OARI, IPMS

5.4.4. Goat (both farming system)

Marketing

Goat is the fast moving saleable commodity in both farming systems. There is a favorable market condition because of the growing involvement of goat meat export abattoirs in the past two years. In fact the producers didn't make the best use of current market opportunities because production and marketing systems are still very traditional.

Table 28. Project support for goat marketing

Activity	Target	Responsible
(400) Conduct study on goats marketing and the long term potentials of exporters	Potential markets in the PLS, including abattoirs	Students, IPMS, OARI and BoARD
(200) Training on market-oriented goat production	Woreda livestock experts' and 5 FTC staff	BoARD, private abattoirs, IPMS, -TA
(300) Pastoralists/farmers training and follow up (in FTC/PAs) on market-oriented goat production	Interested farmers and pastoralists from the PLS	FTC staff guided by woreda experts, IPMS - TA
(300) Develop linkages with traders and potential exporters	Pastoralists in their PAs and farmers in and around 5 FTCs	BoARD, OARI and IPMS
(200) Training on group formation and for goat marketing	Woreda livestock experts and cooperative desk staff	Regional Cooperative Office, IPMS - TA
(300) Farmer/pastoralist training and follow up /in and around FTC/ in group marketing of goat	Farmers/pastoralists in and around the FTC and cooperatives	FTC staff guided by woreda experts, IPMS-TA

Input supply

The goat production is traditional and mainly low input out system. Goat production is based on local breeds. There is inadequate supply of inputs such as veterinary services and drugs and improved breeds. The project will attempt to provide support to the alleviation of these constraints.

Table 29. Project support for goat input supply

Activity	Targets	Responsibility
(400) Assess the input supply system in order to develop innovative improvements	Farmers/Pastoralists in and around the 5 FTC	Project staff, Cooperative desk/ input supply team/
(300) Facilitate improved input supply, including improved breeds	Farmers in and around 5 FTCs and pastoralists	Woreda input supply team, cooperative office, IPMS-TAff
(300) Provision of some credit to the farmers/pastoralists for better breeds (fast multipliers)	Farmers/Pastoralists in and around the 5 FTC	Seed money from the project Through OCSB
(200) TOT on community based animal health services (paravets)	Woreda livestock experts and 5 FTC staff	Oromiya BoARD, IPMS - TA
(300) Farmers/Pastoralists Training and follow up in community based animal health services	Farmers/pastoralists in and around 5 FTC	FTC staff being supervised the woreda and project staff
(200) Supply demonstration materials (pamphlets, brochures, manuals, etc. on goat production in local language)	5 FTCs	Oromiya BoARD, Abernosa RC/EARO, IPMS - TA

Production

The woreda is known for its huge Goat production potential. Among all livestock it is always goat that comes to the market first. If systematic and well-organized goat production is undertaken it could be the most reliable commodity to put people out of poverty and peruse better livelihood sustainably. Production constraints of goat production include poor genetic base, diseases and parasites, and feed shortage. Project will attempt to intervene in these areas in order to help establish an improved and market oriented production system in the PLS.

Table 30. Project support for goat production

Activity	Target	Responsible
(400) Study the current production system of goats	Farmers in and around 5 FTC/pastoralists in their respective PAs	Students, BoARD, IPMS, Students
(200) Training on improved goat management and production including disease control	Woreda livestock experts and staff in the 5 FTC	Oromiya BoARD, IPMS
(300) Farmers/pastoralists training and follow up on improved and innovative goat management and production including disease control	Farmers in and around 5 FTC/pastoralists	FTC staff guided by woreda, IPMS - TA
(200) Training on improved forage development and ,range management and their utilization	Woreda livestock experts and staff in the 5 FTC	BoARD, IPMS-TA

(300) Farmers/pastoralists training and follow up on improved forage development range management and their utilization	Farmers in and around 5 FTC/pastoralists	FTC staff guided by woreda, IPMS -TA
(200 & 300) Travel seminar to staff and Pastoralists/farmers to meat exporting abattoirs (Mojo & Metehara)	Some Farmers in and around 5 FTCs/Pastoralists, woreda livestock experts and 5 FTCs.	Woreda OoPRD, IPMS-TA
(200) Support in training materials production/like flip charts, manuals and brochures/	Farmers/Pastoralists around FTCs and staff at woreda/5/ and 5 FTCs.	Abernosa RC/EARO, IPMS - TA,

5.4.5. Cattle Fattening (Mixed crop/livestock system)

Marketing

Fattened cattle are sold in the local market. Traders in around the woreda and other places come and buy on market days (Monday, Tuesday, Thursday and Saturday) Even though all local markets in the woreda are important, the most important livestock market, from the point of view of producers, with regard to cattle sale is Asebot town...Very few farmers practice cattle fattening. Farmers in Hararghe practice tethering of livestock. It may therefore be easier to communicate and convince farmers on the proper handling of cattle for fattening. Fattened cattle from the neighbouring highlands have the reputation of earning good prices in the Addis Ababa market. This could be used to exploit chances for farmers who fatten cattle. The livestock population is relatively high and farmers need to benefit from this high population.

Table 31. Project support for fattened cattle marketing

Activity	Target	Responsible
(400) Feasibility study on cattle beef supply and demand, (marketing)	Farmers in and around 5 FTC and pastoralists	Students, Oromiya BoARD, IPMS- TA,
(300) Credit service for the purchase of animals for fattening	For interested farmers in and around 5 FTCs	With Project funds through OCSB
(400) Study the effect of indigenous Acacia plant/leaves, bark, and pods/ supply as a supplementary food of animals	Farmers in and around 5 FTC	Students, BoARD, IPMS - TA,
(200) Training on market – oriented beef production	Woreda /3/ and FTCs Staff/5/	BoARD, OARI, IPMS - TA
(300) Farmers training and follow up on market –oriented beef production	Farmers in and around 5 FTCs	FTC staff guided by the woreda staff, IPMS - TA
(300) Facilitate linkage with cattle/beef exporters	Farmers in and around 5 FTCs	Regional marketing Office, OoPRD, IPMS - TA

Input supply

The source of fattened animal is on purchase. Some farmers still use supplementary feeds and shorten the fattening period in order to maximize the profit margin. To improve the supply of drugs and veterinary services for beef and other animals, the existing input supply system will need to be studied during the first year. Innovative approaches will be introduced/supported in the second year, which would include the sale of drugs and veterinary services by private (licensed) shops or cooperatives. The project may also support these innovative activities (if required) through capacity building of staff from cooperatives and/or the private sector.

Feed is one of the major problems of beef especially during the dry and drought periods in the woreda. In order to improve the supply of (protein rich) feed for beef and other animals, the project will support innovations in forage seed multiplication system. The supply of concentrates for livestock is also very limited; the project will attempt to facilitate the supply of concentrates by strengthening the private sector, through either credit facilities or training.

Table 32. Project support for cattle fattening input supply

Activity	Targets	Responsibility
(400) Asses the supply of male young stock for fattening and breeding bull to female ratios and overall herd performance	Farmers in and around 5 FTC	Students, Regional BoARD, IPMS- TA
(300) Provide credit service to people undertaking fattening	Farmers in and around 5 FTC	Project funds through OCSB
(400) Study the potential of privatizing the drug supply and veterinary services in the woreda	Existing program and farms in and around 5 FTCs	Students, Regional BoARD, IPMS -TA
(400) Study the multiplication of fodders and indigenous knowledge on feeds and recommend innovative ways of propagation and use	Farmers in and around 5 FTCs	Students, Regional BoARD, IPMS - TA
(200) Training on farm forage/fodder production and utilization	Livestock experts and 5 FTC staff	BoARD, OARI, IPMS
(300) Training of farmers in the development of farm based fodder multiplication schemes	Farmers/ in and around 5 FTC	FTCs staff with guidance from from the woreda, IPMS - TA
(200) Supply of fodder planting materials (Leucaena, sesbania, pigeon pea, etc.), posters and leaflets on cattle fattening for demonstration purposes	5 FTCs	Woreda OoPRD and IPMS
(200) Training on the production and use of training materials	Woreda and 5 FTCs staff	Regional BoARD, IPMS - TA
(300) Organize “Mieso Beef Animal” show day	Farmers in and around 5 FTC	Woreda and FTC staff, IPMS - TA

Production

Some of the farmers target market and do whatever they can in 2-3 months time and dispose their fattened animals. However, some farmers who are also engaged in cattle fattening, keep their animals for more than 2 years because of poor management and feeding. These animals are also used for ploughing. To commercialise beef production, attention will also be needed on pest and disease control (also important for the quality of hides), feeding, housing and post harvest processing and storage. The project will support this activity through capacity building program. Capacity will also be built for the integration of fodder species into the existing farming system. A study will be conducted to assess the present practices.

Table 33. Project support for beef production (cattle fattening)

Activity	Target	Responsible
(200) Training on improved beef production including disease control	Woreda livestock experts and 5 FTC staff	Oromiya BoARD, OARI, ILRI, IPMS-TA
(300) Training of farmers and follow up in improved beef production in the 5 FTCs	Farmers/ Agro pastoralists in and around 5 FTC	FTC staff with guidance from the woreda livestock experts, IPMS - TA
(200) Training on market oriented beef cattle production	Woreda livestock experts and FTC staff	Regional BoARD, OARI, IPMS
(300) Training of farmers on market oriented beef cattle production	Farmers in and around 5 FTCs	FTCs staff with guidance from woreda livestock experts, IPMS - TA
(300) Travel seminar to beef production areas/East and west Hararghe/	Interested farmers in and around 5 FTCs	woreda OoPRD, IPMS - TA
(200) TOT on community based animal health control (e.g. paravets)	Woreda livestock experts and 5 FTCs staff	Woreda Veterinarian, IPMS - TA
(300) Training of farmers on community based animal health control (e.g. paravets)	Farmers in and around 5 FTCs staff	FTCs staff with guidance from woreda livestock experts, IPMS - TA
(300) Travel seminar to get lessons on Community Animal Health service Provision and Cost recovery system for drugs and vaccines	Trained farmers in and around 5 FTCs	woreda OoPRD and project staff

5.4.6. Cattle milk (Mixed crop/livestock system)

Marketing

Milk production in Mieso is not very well practiced and local cows are used. As a result, it is common to see women with local containers of milk for sale in Mieso town. Milk sale occurs every day in Mieso town. But the amount varies greatly with season and market days. As most cows give birth during the wet season, milk supply rises at this time and the price goes down drastically. The opposite holds true for dry season. There is a potential for the commercialisation of milk and milk products in and around the capital of the woreda. Limited effort has been made to introduce better yielding dairy cows. However, there are some efforts under way to commercialise milk and benefit farmers in the area. At the same time, there is a

potential to develop dairy goat production. Project will make contributions to improve the marketing of milk and milk products in the woreda. This could be through the encouragement and training of the already existing women's group around Mieso town.

Table 34. Project support for cattle milk marketing

Activity	Target	Responsible
(400) Feasibility study on milk supply and demand (marketing)	Farmers in and around 5 FTC	BoARD, IPMS, Students
(200) Training on milk hygienic collection and processing and transporting	Woreda livestock experts and staff in the 5 FTC	BoARD, IPMS
(300) Facilitate credit for Afosha women dairy group for the purchase of improved dairy cows	Members of the dairy group	Project funds through OCSB
(200) TOT on market oriented dairy production system	Woreda /3/ and FTCs Staff/5/	ILRI Debre Zeit, IPMS-TA, Woreda OoPRD
(300) training and follow up on market –oriented dairy production for Afosha women dairy group	Members of the dairy group	FTC staff guided by the woreda and project staff

Input supply

The supply of inputs and services for the dairy system are mainly in the hands of the government and the project will aim at introducing/strengthening innovative systems for input and service supply. Since production is based on local cows, milk yield is very low. The supply of improved dairy breeds or crossbred cows is very limited. Innovative ways of input supply, including breed supply, feed supply and availability of AI service are critical to improve dairy production in the woreda. On the other hand in order to improve the supply of drugs and veterinary services for dairy and other animals, the existing input supply system will need to be studied during the initial year. Innovative approaches will be introduced/supported in the second year, which would include the sale of drugs and veterinary services by private (licensed) shops or cooperatives. The project may also support these innovative activities (if required) through capacity building of staff from cooperatives and/or the private sector. Similarly, feed is one of the major problems dairy production, especially during the dry season, in the woreda. In order to improve the supply of (protein rich) feed for dairy animals, the project will support innovations in forage seed multiplication system. The supply of concentrates for livestock is also very limited; project will attempt to facilitate the supply of concentrates by strengthening the private sector, through either credit facilities or training.

Table 35. Project support for cattle milk input supply system

Activity	Targets	Responsibility
(400) Asses the existing input supply related to dairy (Improved cows, AI, Bull service, etc.) in order to develop innovative market oriented	Farmers in and around 5 FTC	BoARD, IPMS, Students

input supply system		
(300) Provide credit service to “Afosha women dairy group”	Members of the dairy group	Project funds through OCSB
(400) Study the potential of privatizing the drug supply and veterinary services in the PLS	Farms in and around 5 FTCs and beyond	Students, Oromiya BoARD, IPMS-TA
(200) Supply of different fodder planting materials (leucaena, cowpea, sesbania, pigeon pea, etc.), ILRI churner, milk collection, processing and transporting equipments, posters and leaflets on dairy production for demonstration purposes	5 FTCs	ILRI Debre Zeit, Woreda OoPRD, with IPMS’s financial and TA
(200) Training on the production and use of training materials	Woreda livestock experts, 5 FTCs staff	ILRI, Woreda OoPRD, project staff
(300) Facilitate the establishment of private/cooperative vet. drug and services and provide loans, if required	Interested private entrepreneurs, cooperatives	Woreda Cooperative office, project staff
(300) Facilitate loans for purchase of collection and processing equipments	Afosha Women Dairy group	OoPRD Coopertatives Office, OCSB with funds from IPMS

Production

To commercialise dairy production, attention will have to be paid to pest and disease control feeding, housing and handling, processing and storing of milk. The project will support this activity through capacity building programs and availing credit, if required. In addition, capacity will also be built for the integration of fodder species into the existing farming system. A study will be conducted to assess the present practices. Similar to that of Alamata PLS, Parthenium weed (Congress weed) is widespread. As is the case in Alamata, this weed might affect the quality of the milk produced by affecting the test of the milk. This is if dairy cows are not tethered and stall fed. Probably, with intensive training, farmers might tend to keep their cows in their house and hence avoid the problem. This means there will be a need to avail a year round feed source. Therefore, introduction of different drought resistant fodder species need to be introduced to the area.

Table 36. Project support for cattle milk production

Activity	Target	Responsible
(200) TOT on milk production, hygiene, collection, handling, processing and transporting	Woreda livestock experts and 5 FTC staff	Debre Zeit ILRI,, Woreda OoPRD, IPMS-TA
(200) TOT on improved milk production including disease and pest control (paravets)	Woreda livestock experts and 5 FTC staff	Debre Zeit ILRI,, Woreda OoPRD, IPMS-TA

(300) Farmers training and follow up in improved milk production, hygiene, collection, handling, processing, transporting	Farmers in and around 5 FTC	FTCs staff with guidance from woreda livestock experts, IPMS -TA
(300) Training on improved milk production including disease and pest control	Farmers in and around 5 FTC	FTCs staff with guidance from woreda livestock experts, IPMS -TA
(300) Travel seminar to milk processing sites like Debre Zeit (Ada'a Dairy, Genesis) and Sebeta Dairy complex	Farmers in and around 5 FTCs	Woreda Livestock experts, IPMS - TA
(200) TOT on farm forage/fodder production and utilization	Woreda Livestock experts and 5 FTCs staff	Oromiya BoARD, OARI, ILRI Debre Zeit, IPMS - TA
(300) Training of farmers in the development of on-farm fodder planting material multiplication schemes and production	Farmers in and around 5 FTC	With guidance from woreda livestock experts, IPMS - TA

5.4.7. Poultry (Mixed Crop/Livestock Farming System)

Marketing

Mostly, marketing of eggs and chicken takes place in relation to holidays. Chicken and eggs are marketed within the woreda. They are sold by people for home consumption and hotel use. There seems to be no problem of market demand for the products. However, a study (assessment) would be needed to improve the current marketing practices. Group formation may follow depending on the outcome of the study. The project will furthermore introduce some improved egg storage facilities for demonstration purposes.

Table 37. Project support for poultry marketing

Activity	Target	Responsible
(400) Conduct market feasibility study	Farmers in and around 5 FTCs	Students, Debre Zeit RC/EARO, IPMS - TA
(200) TOT in getting basic knowledge in marketing and group formation, especially women	Woreda livestock and 5 FTC staff	Debre Zeit RC/EARO, IPMS-TA
(300) Farmers training and follow up in getting basic knowledge in marketing and group formation	Farmers in and around 5 FTCs	FTC staff with guidance from woreda staff, IPMS - TA

Input supply

Lack of improved genetic material is a major bottleneck for the on farm poultry production. Therefore, supply of improved genetic materials, diseases control and the supply of feed are as well limiting factors in poultry production. The nearest poultry breeding centre for Mieso is Nazreth. It is proposed that this PLS works

closely with breeding centre. Even then however, inputs like day old chicks, cocks, hay boxes, chick run and other equipments need to be available in sufficient quantity. It is also possible that Debre Zeit RC resources could be utilised. Depending on the marketability of the commodity also, private small scale or cooperatives level poultry production could be encouraged. Other alternative innovative ways of poultry input supply will be essential.

Table 38. Project support for poultry input supply

Activity	Targets	Responsibility
(400) Study the existing poultry input supply system	Farmers in and around 5 FTCs	Students, Debre Zeit RC/EARO, IPMS - TA
(200) Supply of demonstration materials (Day old chicks, cocks, hay boxes, chick run, vaccines, etc.)	5 FTCs	Woreda OoPRD, Nazreth Poultry Breeding Centre, IPMS - TA
(300) Encourage farmers organize themselves in cooperatives associations and get loan services	Farmers in and around 5 FTCs	FTCs staff guided by woreda experts, IPMS - TA
(300) Facilitate credit for interested farmers	Farmers in and around 5 FTCs	OCSB with project funds
(300) Link producers with marketing chains	Farmers in and around 5 FTCs	FTCs staff guided by woreda experts, IPMS - TA
(200) Supply of egg storage facilities	5 FTCs	BoARD, OARI, IPMS

Production

About 53, 000 poultry are reported for the PLS. Production is traditional using local chicken. There is an attempt to introduce improved chicken (Red Island Rhode and Swiss Brown) breeds under smallholder conditions for both egg and meat production. Between these two breeds, Red Island Rhode is speculated to be effective and ideal for the area provide it receives proper care, management and disease control. The current poultry production is not geared towards market. As a result it is not considered as a major farm or household activity by many farmers. Hence, its management is often neglected. The project will focus in training and involve women in poultry operations. Poultry is usually considered to be women's activity.

Table 39. Project support for poultry production

Activity	Target	Responsible
(400) Study the existing poultry production system	Farmers around 5 FTCs	OARI, IPMS and students
(200) TOT in improved poultry production, management, use of hay brooders and vaccines	Woreda livestock experts and 5 FTCs staff	BoARD, OARI, IPMS-TA
(300) Training farmers in improved poultry production, management, use	Farmers around 5 FTCs	FTCs staff guided by woreda expert,

of hay brooders and vaccines (paravets)		IPMS - TA
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5.5. Recommendations on innovative technology /practices/ and institutional innovations/400 series/

A number of studies have been proposed/see RBM code 400/to assess technologies and input output marketing aspects of priority commodities. During the project life the introduction of these innovations will be monitored /see 300 activities/ to enable the project and its partners to draw up recommendations on technologies and public and private institutional innovations.

Most of the studies on technologies and institutional innovations cut across several PLS and the findings of the studies will be synthesized across these sites. These will be used to draw lessons on the uptake and impact of technological as well as institutional innovations for marketing/in particular marketing studies and clustering of small farmers with linkages to the larger trade bodies/ and the supply of inputs for crops and livestock. Particular attention will be paid to the impact of these innovations on gender and environment. The synthesized findings will contribute to policy recommendations at the federal and regional level.

The project will furthermore conduct some focused studies and workshops in Gender, HIV/AIDS and Environment in order to develop a strategy for mainstreaming these crosscutting themes in the technology and institutions program. (A detailed description of this program is provided in a separate document). Besides the studies already indicated, the project will undertake a baseline and follow up study on some key indicators. Such baseline data will be gender disaggregated and also include environmental indicators.

Annex 1. Summary of Knowledge-Gaps Analysis in relations to the priority commodities in Mieso PLS

PRIORITY COMMODITY	KNOWLEDGE GAPS			
	Marketing	Input supply	Production	Others
Sesame and Haricot bean	Market-oriented production/quality, processing, standardization packaging and value adding Negotiation skills Private business and its role to the economic development Agribusiness development Business laws and legal codes	Seed multiplication system Training materials production Innovative extension system Innovative institutional approach Spate diversion and management	Agronomic aspects Disease and pest control Post harvest technology Improved varieties development	Participatory development approach Gender, HIV-AIDS and Environment Participatory Resource Use Planning and Implementation/PRUPI/ Networking & Partnership
Goat/meat/. Production	Market-oriented production/quality, processing, standardization packaging and value adding Negotiation skills Private business and its role to the economic development Agribusiness development Business laws and legal codes	Training materials production Innovative extension system Innovative institutional approach Spate diversion and management Community animal health worker training	Fodder development and use Range land management and development Kid management Disease control including cost recovery vaccination system	Participatory development approach Gender, HIV-AIDS and Environment Participatory Resource Use Planning and Implementation/PRUPI/ Networking & Partnership
Cattle/Dairy and Beef/	Market-oriented production/quality, processing, standardization packaging and value adding Negotiation skills Private business and its role to the economic development	Training materials production Innovative extension system Innovative institutional approach Community Animal Health Worker training	Milk processing and hygiene Improved cattle production and management Fattening practice –the modern way Breeds and breeding Calf management Disease control including cost recovery vaccination system	Participatory development approach Gender, HIV-AIDS and Environment Participatory Resource Use Planning and Implementation/PRUPI/
Poultry	Market-oriented production/quality, processing, standardization packaging and value adding Negotiation skills Private business and its role to the economic development Egg handling and marketing	Training materials production Innovative extension system Innovative institutional approach	Improved breed multiplication at farmers level Disease control including cost recovery vaccination system Improved production and management Applied nutrition	Participatory development approach Gender, HIV-AIDS and Environment Participatory Resource Use Planning and Implementation/PRUPI/

Annex 2: Summary of demonstration materials identified as required for the priority commodities

Commodity	Demonstration material	Commodity	Demonstration material
Sesame	<ul style="list-style-type: none"> • Varieties • Moisture conservation technologies (e.g. tie ridger) • Post harvest technologies • Posters, pamphlets, brochures 	Dairy	<ul style="list-style-type: none"> • Different forage species • Husbandry practices • Processing equipment (eg. Churner) • Handling and transporting equipments • Milk preservation methods and equipments • Posters, leaflets, brochure
Haricot bean	<ul style="list-style-type: none"> • Varieties • Moisture conservation techniques • Post harvest technologies • Inoculum • Posters, pamphlets, brochures 	Cattle fattening	<ul style="list-style-type: none"> • Fattening practices • Feed types • Posters, brochures, pamphlets
Chickpea	<ul style="list-style-type: none"> • Varieties • Posters, pamphlets, brochures • Moisture conservation technologies (e.g. tie ridger) • Post harvest technologies • Inoculum 	Goat fattening	<ul style="list-style-type: none"> • Fattening practices • Feed types • Posters, brochures, pamphlets
		Poultry	<ul style="list-style-type: none"> • New feed resources • Market information • Day old chicks, cocks, hay boxes, chick run, vaccine, etc. brooders • Egg storage equipments

Annex 3: Peasant associations visited and held discussion with

No	Name of PA	Farming system	Farmers contacted
1	Gena	Mixed crop-livestock	Adem Usso, Abdi, Fatuma and eyeno
2	Harkoncha	Mixed crop livestock	Abdosh, Abdurehman, Ashitu, Kemero and Umer
3	Kinteri	Mixed crop livestock	Shukria, Meyemuna, Ali, Yusuf, Sediq and Sali
4	Hargeitti	Mixed crop livestock	Ibro, Safo, Ashe, Hussien, Muktar and Amed,
5	Melkhora	Mixed crop livestock	Halima Mussa, Yusuf Sali, Woday Mohammed
6	Fayoo	Mixed crop livestock	Yusuf and Ali
7	Direqallu	Pastoral	Mohammed Ali, Amed Ali, Kedija mohammed

Annex 4. List of Mieso Planning Workshop participants

No	Name	Sex	Institutions
1	Nigatu Alemayehu	M	ILRI-IPMS
2	Dr Abrham Tsehay	M	W/H zonal OoARD
3	Reta Lemma	M	NGO-MERCY CORPS
4	Semmer Hussien Jemal	M	Metehara Meat Export Abattoir
5	Sufian Abdulahi	M	Mieso worda vet. Team/OoPRD/
6	Tadesse Ferdissa	M	Mieso worda, OoPRD
7	Zewdu Ayele	M	ILRI-IPMS
8	Derese Kassa	M	Mieso worda, OoPRD
9	Million Worku	M	W/H zonal OoARD
10	Amed Mussa	M	Mieso worda Administration
11	Ibro Dadi	M	Hargeiti PA, Farmer
12	Kedija Yuyee	F	Hargeiti PA, Farmer
13	Mohamed Ali	M	Direqallu PA, Farmer
14	Halima Mohammed	F	Direqallu PA, Farmer
15	Ali Seid	M	Qiqiliftu PA, Farmer
16	Asha Aliyi	F	Qiqiliftu PA, Farmer
17	Sintayehu Shiferaw	M	Mieso, OoPRD
18	Ayalew Shiferaw	M	Woreda Adm.
19	Emebet Tadesse	F	Woreda Women Affairs
20	Tesfaye Debalqie	M	OoPRD
21	Atalelech Admsasu	F	OoPRD-NRM
22	Emawayesh Mekonon	F	OoPRD -Home agent/rural women aff./
23	Zeray Mehari	M	Melkawerer research center
24	Moges Gashaw	M	Cooperative desk
25	Ayenalem Birhanu	F	OoPRD-Extension
26	Kedija ali	F	Kinteri PA- Farmer
27	Halima Abdurqie	F	Melkahora PA, Farmer
28	Amina Ayoo	F	Hundeemisoma PA, Farmer
29	Fatuma Hassen	F	Hundeemisoma PA, Farmer
30	Mohammed Elemo	M	Hundeemisoma PA, Farmer
31	Ibro Sali	M	Melkahora PA, Farmer
32	Addisu Ayenew	M	HIV/AIDS secretariat
33	Abebe Misgna	M	ILRI-IPMS
34	Dr Birhanu G/Medhin	M	ILRI-IPMS
35	Dr Azage Tegegne	M	ILRI-IPMS
36	Mohammed Hassena	M	Oromiya- Agri. Research Institute
37	Derje Mekonon	M	Information and public relation
38	Mohammed Ademe	M	Odaqeneni PA, Farmer
39	Kahsaye Berhe	M	ILRI-IPMS
40	Razia Mussa	F	Odaqeneni PA, Farmer
41	Asha Abdurehman	F	Odabella PA, Farmer
42	Meka Mohammed	F	Gena PA, Farmer
43	Genet Atinafu	F	DA- Gena PA
44	Anbesu Hailu	M	DA- Asebot/Harkoncha
45	Abdosh Mumed	M	Harkoncha PA, Farmer

46	Fatuma Mumed	F	Harkoncha PA, Farmer
47	Mohamed Ammie	M	Gena PA, Farmer
48	Amed Mohammed	M	Odabella PA, Farmer
49	Moges Abate	M	OoPRD- Irrigation
50	Melaku Jirata	M	MoARD- Extension
51	Kidane Tumsa	M	Melkasa Research center
52	Etefa Getu	M	Mieso Agri. Research sub center
53	Ammie Hassene	M	PA, Farmer

Livestock Discussion Group

No	Name	Sex	Position
1	Nigatu Alemayehu	M	Expert
2	Dr Abrham Tsehay	M	Expert
3	Reta Lemma	M	Expert
4	Semmer Hussien Jamal	M	Expert
5	Sufian Abdulahi	M	Expert
6	Tadesse Ferdissa	M	Expert
7	Zewdu Ayele	M	Expert
8	Derese Kassa	M	Expert
9	Million Worku	M	Expert
10	Amed Mussa	M	Expert
11	Ibro Dadi	M	Farmer
12	Kedija Yuyee	F	Farmer
13	Mohamed Ali	M	Farmer
14	Halima Mohammed	F	Farmer
15	Ali Seid	M	Farmer
16	Asha Aliyi	F	Farmer
17	Dr Azage Tegegne	M	Expert

Institution discussion group

No	Name	Sex	Position
1	Sintayehu Shiferaw	M	Expert
2	Ayalew Shiferaw	M	Expert
3	Emebet Tadesse	F	Expert
4	Tesfaye Debalqie	M	Expert
5	Atalelech Admsasu	F	Expert
6	Emawayesh Mekonon	F	Expert
7	Zeray Mehari	M	Expert
8	Moges Gashaw	M	Expert
9	Ayenalem Birhanu	F	Expert
10	Kedija ali	F	Farmer
11	Halima Abdurqie	F	Farmer
12	Amina Ayoo	F	Farmer
13	Fatuma Hassen	F	Farmer
14	Mohammed Elemo	M	Farmer
15	Ibro Sali	M	Farmer
16	Addisu Ayenew	M	Expert
17	Abebe Misgna	M	Expert
18	Ammie Hassene	M	Expert
19	Dr Berhanu G/Medhin	M	Expert

Crop discussion group

No	Name	Sex	Position
1	Mohammed Hassena	M	Expert
2	Derje Mekonon	M	Expert
3	Mohammed Ademe	M	Farmer
4	Kahsay Berhe	M	Expert
5	Razia Mussa	F	Farmer
6	Asha Abdurehman	F	Farmer
7	Meka Mohammed	F	Farmer
8	Genet Atinafu	F	Expert
9	Anbesu Hailu	M	Expert
10	Abdosh Mumed	M	Farmer
11	Fatuma Mumed	F	Farmer
12	Mohamed Ammie	M	Farmer
13	Amed Mohammed	M	Farmer
14	Moges Abate	M	Expert
15	Melaku Jirata	M	Expert
16	Kidane Tumsa	M	Expert
17	Etefa Getu	M	Expert

Annex 5. List of P As, population by sex in both farming system in Mieso Woreda*

No.	PA	Number of HH			Total population	Farming system
		Male	Female	Total		
1	Qiqiliftu	401	46	447	2947	Pastoral system
2	Dirba	311	61	372	1614	Pastoral system
3	Direqalu	310	110	420	2073	Pastoral system
4	Tedecha guracha	286	196	482	3515	Pastoral system
5	Buri arba	300	124	424	2365	Pastoral system
6	Belew	530	200	730	2870	Pastoral system
7	Gunbi	230	134	364	1869	Pastoral system
8	Sirba	410	27	437	1688	Pastoral system
9	Weltane	418	54	472	2527	Crop/Livestock farming system
10	Gemechu	654	235	889	4975	Crop/Livestock farming system
11	Orfoo	246	65	331	1956	Crop/Livestock farming system
12	Sodoma goro misira	368	95	463	1922	Crop/Livestock farming system
13	Huse adami	382	73	455	2583	Crop/Livestock farming system
14	Melka hora	685	286	971	5312	Crop/Livestock farming system
15	Buraisa tuqa	466	81	547	2759	Crop/Livestock farming system
16	Gena	415	180	595	2865	Crop/Livestock farming system
17	Bililo	290	30	320	1602	Crop/Livestock farming system
18	Chachule	378	110	488	2957	Crop/Livestock farming system
19	Gulufa	387	95	482	3086	Crop/Livestock farming system
20	Fayoo	357	118	475	2716	Crop/Livestock farming system
21	Harkoncha	575	113	688	3568	Crop/Livestock farming system
22	Direkora	676	158	834	4211	Crop/Livestock farming system
23	Oda qeneni	955	317	1272	6347	Crop/Livestock farming system
24	Oda roba	734	72	806	4838	Crop/Livestock farming system
25	Agamsa fi chelea	302	26	328	1671	Crop/Livestock farming system
26	Hundee misoma	655	115	770	3245	Crop/Livestock farming system
27	Deneba hundee misoma	594	210	804	3796	Crop/Livestock farming system

28	Oda bella	601	202	803	4642	Crop/Livestock farming system
29	Itisa roro	449	90	537	2365	Crop/Livestock farming system
30	Harmero deyma	564	172	736	4423	Crop/Livestock farming system
31	Harmero meta deyma	402	98	500	2649	Crop/Livestock farming system
32	Welda jejeba	545	95	640	4083	Crop/Livestock farming system
33	Aneno	437	151	588	3340	Crop/Livestock farming system
34	Burqa qebena	777	60	837	3876	Crop/Livestock farming system
35	Kinteri	355	93	448	2480	Crop/Livestock farming system
36	Hargetti	428	120	548	2642	Crop/Livestock farming system
37	Welda jalela	624	105	729	3215	Crop/Livestock farming system

Annex 6. Name of FTCs and the farming system they are found

No.	Name of FTC	Farming system,
1	Melka hora	Crop/Livestock
2	Gena	Crop/Livestock
3	Oda qeneni	Crop/Livestock
4	Hundee misoma	Crop/Livestock
5	Oda bella	Crop/Livestock

Annex 7. List of Mieso WALC members and their address

Name	Institution (Post)	Telephone
Sintayehu Shiferaw (Chair)	OoPRD, Head	09-320236
Teshome Dinegde	OoPRD, Cooperative Desk, Head	05-440018
Moges Abate	OoPRD, Irrigation Desk, Head	05-440018
Sufiyan Abdulahi	OoPRD, Veterinary Section Head	05-440018
Dereese Kassa	OoPRD, Livestock Production Head	09-751526
Ashenafi Alemu	OoPRD, NRM Desk, Head	05-440018
Shiferaw Workneh	OoPRD, Input supply Desk, Head	09-751498
W/ro Aynalem Birhanu	OoPRD, Extension Desk, Head	05-440037
W/ro Emawayesh Mekonnen	OoPRD, Home Agent	05-440018
W/ro Neima Ahmed	Woreda Women Affairs	05-440007
Itefa	Mieso Research Substation, Head	
Addisu Ayenew	HIV/AIDS Secretariat, Head	05-440007
Zewdu Ayele (Secretary)	PLS Research & Development Officer	

Annex 8. Mieso PLS planning workshop program, May 30-31, 2004

Mieso town

Date	Time	Topic	Speaker
May 30,2005	9:00 - 9:30	Registration	Ato Zewdu Ayele
Moderator - Ato Zewdu Ayele			
	9:30-9:45	Welcome and Introduction	Ato Sintayehu Shiferaw (Wereda Pastoral and Rural Development, Head, WALC Chair)
	9:45 - 10:00	Project Background	Dr. Azage Tegegne
	10:00 - 10:10	PRA Process	Ato Zewdu Ayele
	10:10 - 10:30	Coffee break	
Chair Person – Ato Million Worku			
	10:30 - 10:50	Crop Production	Ato Itefa Getu/Kahsay Berhe
	10:50 - 11:00	Questions/Discussion	
	11:00 -11:20	Animal Production	Ato Zewdu Ayele
	11:20 - 11:30	Questions/discussion	
	11:30 - 11:50	Institutions	Ato Zewdu Ayele
	11:50 - 12:00	Questions/discussion	
	12:00 - 1:00	General discussion	
	1:00 - 2:00	Lunch break	
	2:00 - 5:30	Breakup session	
		Group 1. Crop production	Chair: Ato Melaku Jirata Secretary: Ato Itefa Getu/Kahsay Berhe
		Group 2. Livestock production	Chair Ato Negatu Alemayehu Secretary: Ato Sofian Abdulahi
		Group 3. Institutions	Chair Ato Sintayehu Shiferaw Secretary: Ato Abebe Misgina
May 31,2005	9:00 - 10:00	Breakup session continued	
	10:00 - 10:30	Coffee break	
	10:30-12:30	Group Discussion	
	1:00 - 2:00	Lunch break	
Chair Ato Mohamed Hassena			
	2;00-2:20	Group 1 Crop report	Ato Melaku Jirata
	2:20 -2:40	Questions/discussion	
	2:40 - 3:00	Group 2 Livestock report	Ato Sofian Abdulahi
	3:00 -3:20	Questions/discussion	
	3:20 - 3:40	Group 3 Institutions report	Ato Sintayehu Shiferaw
	3:40 - 4:00	Questions/discussion	
	4:00-4:50	General discussion	
	4:00 - 5:00	wrap up and the way forward session	Dr. Azage Tegegne
	5:00	Closing	Ato Abdela Hussien, Mieso Wereda Administrator