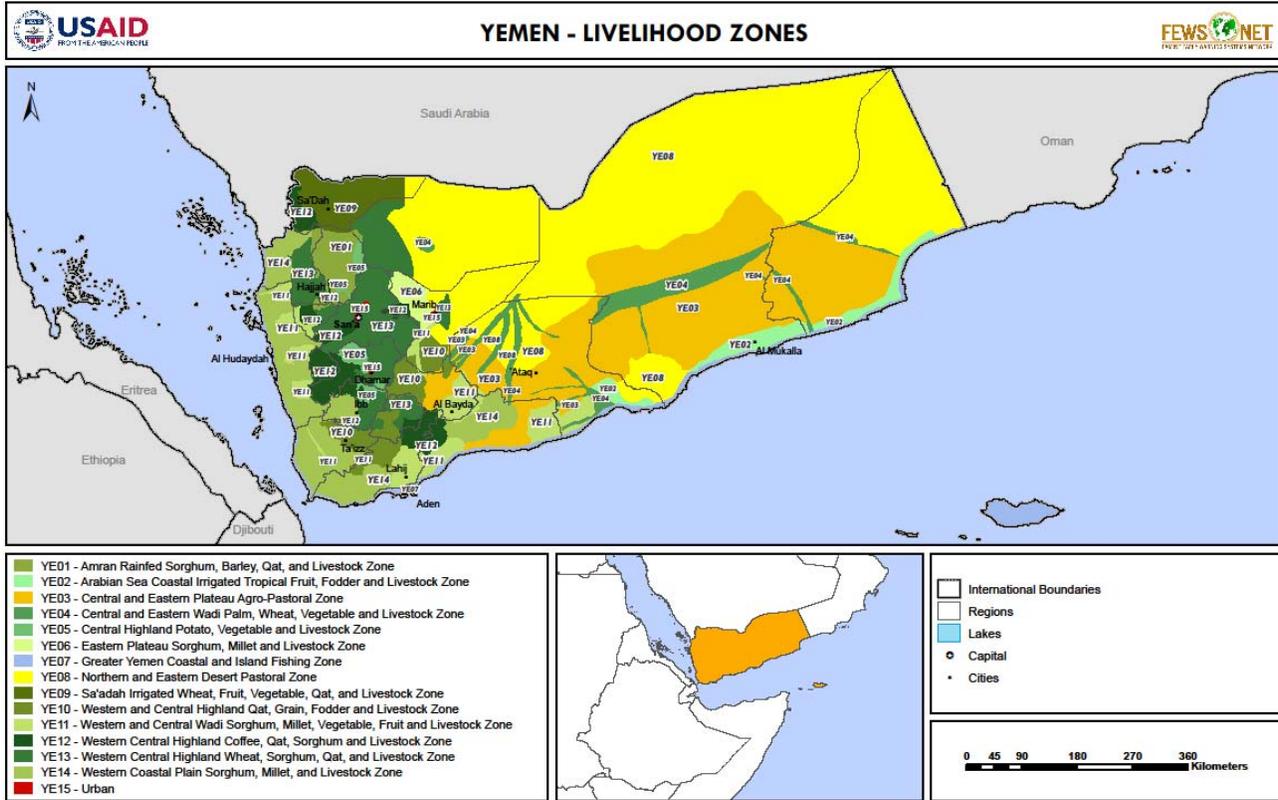




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# LIVELIHOODS ZONING “PLUS” ACTIVITY IN YEMEN

A SPECIAL REPORT BY  
THE FAMINE EARLY WARNING SYSTEM NETWORK (FEWS NET)

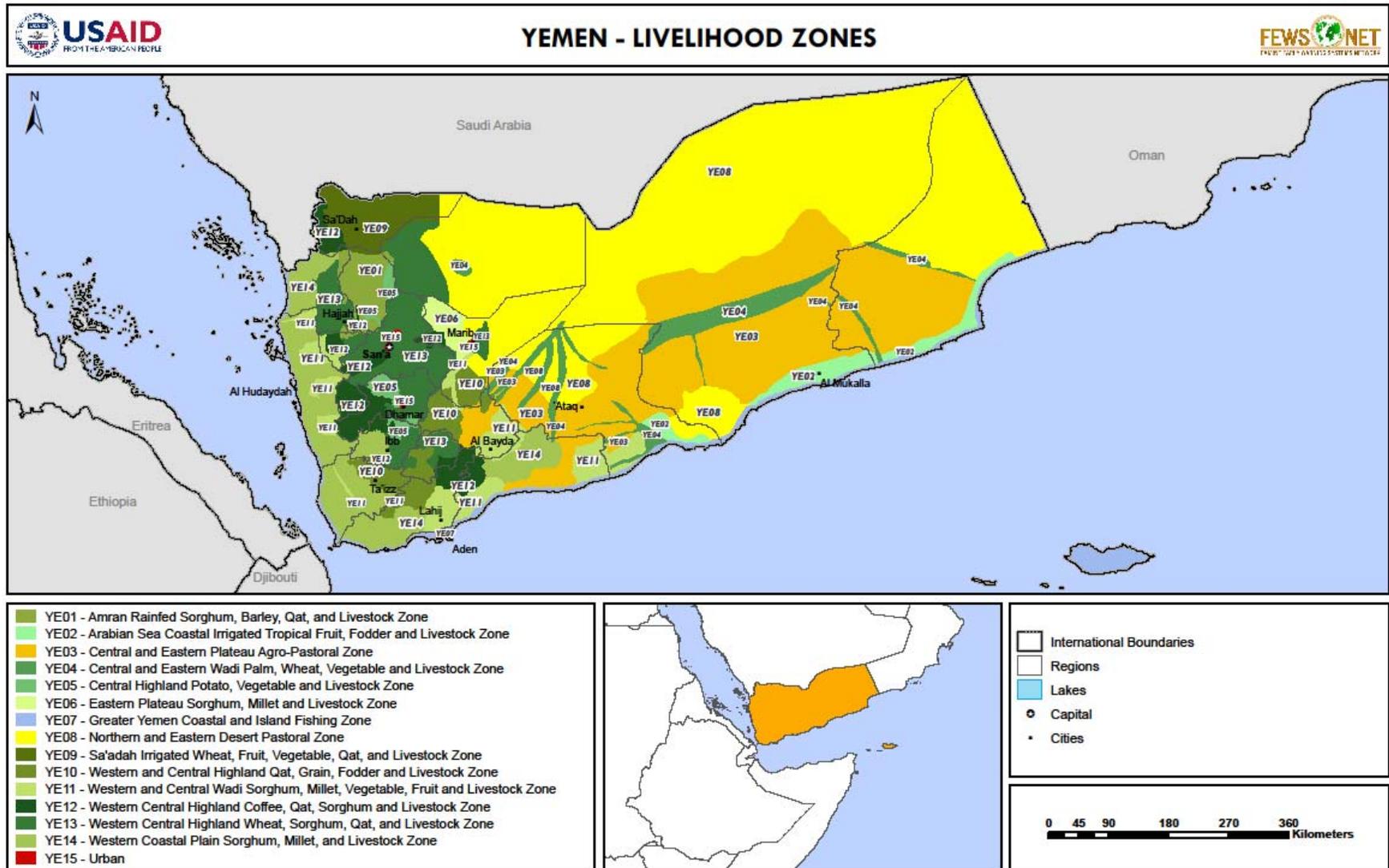
# LIVELIHOODS ZONING “PLUS” ACTIVITY IN YEMEN

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## **Acknowledgements**

The report that follows was written by Stephen Browne, the FEWS NET consultant who facilitated the livelihood zoning 'plus' exercise. I would like to recognize the firm support in the coordination, and presence in the livelihood zoning 'plus' workshops of Yacoub Abdelwahid, FEWS NET Remote Monitoring Coordinator, Brian Kriz, FEWS NET Early Warning Specialist, Andrew Lauke, Chemonics Manager, and Emtinan Almidwahi, Yemen Field Coordinator. I would like to express together with my colleagues a heartfelt thanks to all the participants who, with patience and goodwill worked hard to achieve a successful outcome. Each of our expert participants kindly illustrated the diversity of Yemeni geography and livelihoods.

# Livelihood zone map



## INTRODUCTION

This report provides the results of a livelihood zoning “plus” activity conducted by FEWS NET in January 2010 in Yemen. Yemen is one of ten countries in which FEWS NET will implement a new type of “remote coverage” food security early warning. This “remote coverage” in non-presence countries (countries in which FEWS NET does not have an office) is meant to allow FEWS NET to more effectively respond to USG, USAID-wide, Food for Peace, and partner information requirements. The “remote coverage” work requires a streamlined approach to early warning, and the livelihood zoning “plus” exercise—the first step in the process—is necessary in order to characterize the livelihood patterns within a country, identify appropriate monitoring indicators and flag potential problems early on.

The livelihood zoning “plus” exercise includes a traditional livelihood zoning exercise<sup>1</sup> that disaggregates populations by general wealth groups and offers a minimum set of livelihoods information (such as sources of food and income), in addition to the development of zone-specific seasonal calendars and the identification of zones particularly vulnerable to food insecurity.

Before the main exercise, an internal desk review identified available secondary information and information gaps and compiled key materials for development of livelihood zone maps and seasonal calendars. Relevant and available secondary data including agro-ecological maps, demographic data, and rainfall, production, market data, partner reports, and statistical data from the Government of Yemen’s Central Statistical Organization were used to corroborate information gathered in the workshop.

The 2010 livelihoods zoning “plus” exercise in Yemen was not designed to provide truly comprehensive food security analysis, but rather to identify when conditions may warrant further investigation. The results presented in this report are useful in describing how people in different parts of the country may be affected by various hazards. It provides a geographic context for interpreting existing monitoring information on crop and livestock production, prices and a range of other indicators and identifies potential problems at an early stage. If needed rapid assessment teams can use the zoning as an appropriate, livelihoods-based sampling frame.

## LIVELIHOODS ANALYSIS AND FEWS NET

Since at least the mid-1980s, there has been a growing understanding that rural food security is not simply a matter of food production, and that effective famine early warning is not simply the measurement of reduced food production. There is also, crucially, the ‘demand side’ — the capacity of farmers and herders to buy food. Indeed, in rural areas globally, the overwhelming evidence from the field is that the poorer people are, the more they *normally* rely on purchasing staples on the market, because they cannot get enough food-crops from the land they have, or enough milk from the livestock they keep. Food security analysis has become as much about people’s sources of cash as about their production of food.

Livelihoods analysis among rural and urban populations in developing countries has grown via two main strands since the early 1990s. The first has been the product largely of NGOs such as CARE International, using Rapid Rural Appraisal techniques to establish the context of village-level programs, often related to food security. The second strand has been more squarely in the realm of food security. It originated in the need to assess acute food insecurity — actual or threatened — in order to guide donor and government decisions regarding assistance needs, notably food relief. This more specific focus required quantified results, which were a particular feature of the Household Economy Approach (HEA) first developed by the NGO Save the Children UK and then taken forward by FEG Consulting.<sup>2</sup> However, the quantified livelihoods information has been recognized as applicable

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<sup>1</sup> A livelihood zone is defined as an area within which people share, broadly, the same options for obtaining food and income as well as similar market access and opportunities.

<sup>2</sup> An explanation of HEA and a list of resource documents is available at [www.feg-consulting.com](http://www.feg-consulting.com)

far beyond food aid decisions, from village-level agricultural investment planning to the design of market development projects.

Starting in 2000, FEWS NET took on FEG Consulting as its permanent sub-contractor for Vulnerability and Livelihoods Analysis. Since then, FEWS NET has run or been prominent in livelihoods zoning and profiling in a dozen African countries as well as a five countries in Central America and Central Asia. In Ethiopia and Malawi together with a number of southern African countries, FEWS NET has helped HEA to become the basis of famine early warning by government. Elsewhere FEWS NET has been able to offer livelihood zoning and profiling results that have been used by government and agencies for a number of purposes. In all of this, it has been the representation of households and how they operate which has been the key reference point.

## **THE LIVELIHOOD ZONING “PLUS” PROCESS IN YEMEN**

A four-day workshop was organized in Sana’a from January 24<sup>th</sup> – January 28<sup>th</sup> facilitated by a FEWS NET consultant and remote monitoring staff. The workshop participants were representatives from the Government of Yemen Governorate offices (see Annex 2). They were chosen by their respective offices as people with excellent local and regional knowledge of rural areas and living conditions. In the workshop, the following was done:

- The participants were given an introduction to livelihoods analysis and the Household Economy Approach, especially as it pertains to livelihoods zoning;
- Available documentation was reviewed, including some brought by participants from their districts;
- Through an iterative process, a first outline map of proposed livelihoods zones was constructed and discussed;
- The participants were split into five working groups to consider in detail the collection of districts on which they had special knowledge; and they were then brought together to consolidate a final draft map;
- In working groups again, each of the livelihood zones was attributed the relevant districts, so that the eventual digitized map would combine both livelihoods zones and administrative boundaries;
- The participants then filled in a livelihood description form for each livelihood zone;
- The participants also filled out livelihood zone specific seasonal calendars to provide a picture of the range of production and market activities households engage in within a year’s timeframe;

## **RESULTS**

The main outputs of the exercise were the national livelihood zone map, which identifies, illustrates, and maps livelihood patterns within Yemen; and zone specific seasonal calendars. The national livelihood zone map is shown below, with a separate table of zone codes and titles. A set of summary descriptions of the zones, along with their respective seasonal calendars, is then given.

Livelihood zone map for Yemen consist of 14 geographic areas where people share similar access to food, income and markets. Six livelihood zones were identified in the densely populated highland areas in the western part of Yemen. These highland livelihood zones are characterized as being dependent of cereal production, mostly for sale and labor opportunities, and livestock husbandry. While the majority of crops grown in these six livelihood zones are similar, the degree to which households depend on them varies significantly. For instance, in the *Amran Rainfed Sorghum, Barley, Qat and Livestock Zone (YE01)*, the majority of households rely on the consumption, sale and labor opportunities of cereals (mostly sorghum and barley), and qat production to meet most of their annual food and income needs. Poor market access limits the degree in which households are able to sell and purchase commodities. On the other hand, households in the *Western and Central Highland Wheat, Sorghum, Qat and Livestock Zone (YE13)* also rely on grain (mostly wheat and sorghum) and qat production to meet their annual needs; however, road networks are generally good allowing for steady flow of commodities into and outside of the zone.

The importance of cash crops such as vegetables, coffee and qat was another factor considered in disaggregating the zones. For example, if one zone is largely dependent on coffee production for sale and labor opportunities, and an outbreak of coffee wilt destroys 35% of the season's harvest, households in this zone will incur cash deficits that may affect their ability to purchase food. Conversely, those living in neighboring qat dependent zones will not feel the effects of this hazard.

In addition to the six highland livelihood zones, a large fishing-based economy livelihood zone was identified along Yemen's 2,350 km coastline and islands of the coast. Though there are differences between fishing communities residing in the Red Sea and Gulf of Aden areas of this fishing zone, households in both areas share broadly the same fishing based livelihood pattern and therefore were grouped under one livelihood zone.

Two *wadi*<sup>3</sup> influencing livelihood zones were identified in the country. The main differences between these two *wadi* zones are the types of crops grown, access to food and agro-ecology. *Wadis* in the *Central and Eastern Wadi Palm, Wheat, Vegetable and Livestock Zone (YE04)* are found in plateau parts of the Eastern and Central part of Yemen. Most households in this livelihood zone rely on food purchases to meet most of their annual food requirement and produce wheat, sorghum, dates, and a range of vegetables. The *wadis* in the *Western and Central Wadi Sorghum, Millet, Vegetable, Fruit and Livestock Zone (YE11)* are typically found in lowland plain areas and cultivate sorghum, millet, vegetable and tropical fruits.

There are two coastal/lowland plain livelihood zones situated to the east and north of the *Greater Yemen Coastal and Island Fishing Zone (YE07)*. To the west, and along the Tahama Plain, is the *Western Coastal Plain Sorghum, Millet and Livestock Zone (YE14)*. This zone is characterized as a mixed-farming system, where crop production, mostly grains, is equally important as livestock husbandry. Some households living in Al Hudaydah, Abyan, and Lahj Governorate may also cultivate and sell cotton. The coastal plain along the Arabian Sea primarily depends on the production of vegetable, grains for fodder and fruits. Some households in Hadramaut Governorate may also grow tobacco and produce honey. Market access in the latter livelihood zone is considered good allowing households to purchase and sell commodities throughout the year and without major limitations.

The *Northern and Eastern Desert Pastoral Zone (YE08)* stretches across most of the northern parts of Yemen. Households in this zone are mostly pastoralists depending on the sale of livestock products and livestock to finance food purchases. Two plateau livelihood zones were also identified: the *Central and Eastern Plateau Agro-Pastoral Zone (YE03)* and the *Eastern Plateau Sorghum, Millet and Livestock Zone (YE06)*. Households in the former zone rely heavily on the sale of livestock and livestock products for both food and income. Additionally these households will also engage in opportunistic farming activities. Households in the *Eastern Plateau Sorghum, Millet and Livestock Zone (YE06)* rely less on livestock and more on the production of grains and vegetables. Though this is an agriculture zone, most of the crops are sold at the market. Therefore, household source the bulk of their food not from their fields but from the market.

Rural Yemen is largely dominated by agriculture and livestock rearing. Grains such as sorghum, wheat, millet, maize and barley account for 58% of the area planted while cash crops (17%), fruits and vegetables (12%), animal fodder (10%) and pulses (4%) accounting for the remainder<sup>4</sup>. In most agriculture-based livelihood zones, poor households that have access to land are limited by the size of their plots to growing minimal amounts of food for consumption and even less for sale. Additionally, in cash crop dependent zones, food crops are often forfeited for high-valued crops such as qat, coffee, cotton, sesame, and tobacco. Therefore, many Yemeni poor must rely on buying food from the market to cover their annual food requirement. Financing this significant expense with limited assets and resources drive many to sell the only asset they have, labor. Agriculture-based labor is Yemen's

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<sup>3</sup> *Wadis* are river valley areas that utilize water resources from highland areas during rainy seasonal to irrigate crops

<sup>4</sup> FAO/WFP Crop and Food Security Assessment Mission to Yemen

most important employer<sup>5</sup> however the demand is contingent on a range of factors including precipitation, market demand, and civil security.

In addition to agriculture, livestock ownership is an integral component to rural Yemeni livelihoods. In general, most households own livestock (goats, sheep, cattle, and camels) and rely on both the consumption of livestock products<sup>6</sup> and livestock sales. Poorer households that have access to livestock, either through ownership or through social arrangements, are typically more food secure. The sale of animals accounts for a significant portion of household income and serves as a crucial strategy when faced with hazard induced food or economic deficits.

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<sup>5</sup> 2008 Statistical Yearbook, Central Statistical Organization

<sup>6</sup> Meats, milk, sour milk, butter, wool, hides, and manure.

## Livelihood zone descriptions

Livelihood Zone #1 – Amran Rainfed Sorghum, Barley, Qat and Livestock Zone		
<b>Food Crops</b>	Sorghum Wheat Barley	<p>This mixed-agriculture livelihood zone covers most of Amran governorate. Rain-fed grains (sorghum, wheat, and barley) are produced for household consumption, while qat, sorghum, and barley are produced for sale. Livestock, mostly sheep, goats and cattle, provide significant contribution to both household food and income sources.</p> <p>Better-off households source the bulk of their annual food requirements from their fields and purchase food according to need. Poor households, on the other hand, cannot produce enough food and therefore are mostly dependent on food purchases.</p> <p>Crop sales, mostly grains but also qat, are the main income source for the better-off, followed by livestock sales and qat trading. Like other highland agriculture areas, income opportunities for the poor are mostly limited to labor sales, followed by small stock and crop sales.</p> <p>Though the zone’s proximity to larger trading centers and the market of Sana’a should facilitate the sale and purchase of food and non-food essentials, rocky terrain and poor road networks limit normal household access. The grains and qat produced in the zone are sold locally to traders who then transport it to Sana’a and/or Hadaydah. Livestock is also sold locally and distributed to larger trading center in the western part of Yemen.</p> <p>Inadequate rainfall, crop, and livestock diseases are the main hazards in this livelihood zone. If any of these hazards creates a food or income, deficit households will rely on coping strategies to curb food insecurity. Poorer household may sell additional livestock, increase local and migrant labor, and reduce the number of meals consumed in a day. Better-off households will sell livestock and may also tap into their grain reserves or reduce their expenditures of non-essentials.</p>
<b>Sold Crops</b>	Qat Sorghum Barley	
<b>Livestock</b>	Goats Cattle Poultry	
<b>Cash Income</b>	Daily labor Crop sales Trade Livestock sales	
<b>Main Markets</b>	<u>Crops</u> Sana’a Hodaydah  <u>Livestock</u> Amran	
<b>Hazards</b>	Crop failure Crop disease Livestock disease	

<b>Livelihood Zone #2 – Arabian Sea Coastal Irrigated Tropical Fruit, Fodder and Livestock Zone</b>		
<b>Food Crops</b>	Sorghum Maize Vegetables	<p>This sparsely populated agriculture-based livelihood zone is nestled between the <i>Greater Yemen Coastal and Island Fishing</i> and <i>Central and Eastern Plateau Agro-Pastoral</i> livelihood zones in the Shabwah, Hadramout and Al Maharah Governorates. Though this zone receives little rainfall, approximately 50-120 mm, households are able to produce grains, vegetables, and fruits using spate irrigation. Sorghum, maize, dates, vegetables, and fruits are grown for consumption; however, most of what is produced is sold. Similar to other livelihood zones throughout Yemen, livestock and their products offer most households with an essential source of cash and food.</p> <p>All households in the zone rely on the market as their primary source of food. Better-off households will compliment their food purchases with own crops and available livestock products. In addition to their food purchases, the poor source food by working for others and being paid in grains, or from the milk and meat, their animals offer.</p> <p>To fund the burden of purchasing most of their food, households in this zone engage in a range of income generating activities. Better-off household earn most of their cash from fodder, dates and vegetable sales, followed by selling livestock and remittances. Poor households earn most of their cash by working on the farms of their better-off neighbors and they supplement this with livestock and livestock product sales. Some households in the zone also grow specialty crops such as tobacco, henna and citrus.</p> <p>Poor road networks and long distances to markets make access difficult for most of the zone’s residents. The commodities produced in the zone (including livestock and livestock products), are sold locally, and then are transported to regional trading centers. Wheat and rice are imported to the zone via the large ports of entry, Aden, Mukala, Hadaydah and then transported to regional trading centers.</p> <p>Food price increases, erratic or insufficient rains, crop pest, and flood are some of the common hazards affecting household access to food or income. The level to which households are capable of responding to offset and deficits incurred largely depends on wealth. Better-off households tend to be more resilient to shocks as they are capable of selling more animals without compromising their asset base. They may also increase their engagement in trading and smuggling. The poor may sell animals but the long-term effects may make them more vulnerable to future shocks. They will also increase local and migrant labor activities, or borrow from friends or relatives.</p>
<b>Sold Crops</b>	Sorghum Maize Dates Vegetables Fruits Tobacco Henna Citrus	
<b>Livestock</b>	Sheep Goats	
<b>Cash Income</b>	Fodder sales Crop sales Daily labor Livestock sales Remittances	
<b>Main Markets</b>	Shabwah, Hadramout Al Maharah	
<b>Hazards</b>	Price volatility Insufficient rains Crop disease Floods	

<b>Livelihood Zone #3 – Central and Eastern Plateau Agro-Pastoral Zone</b>		
<b>Food Crops</b>	Wheat Sorghum	<p>This large, agropastoral, semi-arid livelihood zone cuts through parts of Shabwah, Hadramout, Al Maharah, Abyan and Al Baydah. Population density is higher in the western part of the zone and becomes sparser towards the east. Unimodal rains precipitate less than 60 mm of moisture annually, rendering crop production a risky livelihood option. If conditions permit, households can produce wheat and sorghum; however, the amounts they harvest are insufficient to meet their food needs. Therefore, most households are dependent on the market for their food, followed by livestock products such as milk, ghee, and meat. Better-off households may also consume some of the wheat or sorghum they harvest, but the amounts are minimal. Poorer households may compliment their diets with grain or milk obtained as payment for working for better-off households.</p> <p>Poor households finance their food costs by selling labor, livestock, and the minimal crops they are capable of harvesting. Better-off households sell livestock, crops and receive remittances from relatives living outside the zone and outside the country.</p> <p>Like the pastoral livelihood zone to the north, this livelihood zone is remote. Markets are often too far from households and the transportation system within the zone is inadequate. For this reason, most of the commodities produced in the zone are sold locally. Most of the labor opportunities are found outside the rural areas, in zone towns and in the coastal fishing zone.</p> <p>Insufficient rainfall, floods, livestock disease, and civil insecurity are the main hazards of the zone. When shocks happen, poor households may send one or more members to the neighboring <i>wadi</i> or coastal zones to look for work. They will also reduce non-essential expenditures, reduce meals, and purchase cheaper foods. As a last resort, the poor will sell additional livestock; however, this option may make them less resilient to future shocks as it reduces their already-limited asset base. Better-off households are more resilient and can afford to sell livestock without future implications. They will also increase trade activities and reduce production costs, mostly by not hiring laborers.</p>
<b>Sold Crops</b>	Wheat Sorghum	
<b>Livestock</b>	Cattle Sheep Goats	
<b>Cash Income</b>	Labor Livestock sales Crop sales Remittances Milk Ghee Meat	
<b>Main Markets</b>	Shabwah, Hadramout, Al Maharah, Abyan Al Baydah	
<b>Hazards</b>	Rain failure Crop disease Floods Livestock disease Civil insecurity	

<b>Livelihood Zone #4 – Central and Eastern <i>Wadi</i> Palm, Wheat, Vegetable and Livestock Zone</b>		
<b>Food Crops</b>	Wheat Sorghum Market-gardening Dates	<p>Households living in the <i>wadi</i> areas that produce wheat, sorghum, vegetables and palm of Al Jawf, Shabwah, Hadramut and Al Maharah Governorates share the same access to food and income, and therefore were grouped under one livelihood zone. The zone is mostly agriculture-based; however, livestock, specifically goats, camels and sheep are also kept by households. The zone’s residents take advantage of the <i>wadis</i> to irrigate their fields providing sufficient moisture to grow vegetables and dates. Cereals such as wheat and sorghum are also produced for consumption and sale.</p> <p>While agriculture is the dominant livelihood activity, crops production only makes up a small portion of their annual food requirement. Instead of consuming the grains, better-off households will sell and rely on the market to source most of their food. The poor also depend on purchased food, financing the cost through livestock and labor sales. Most households in this zone are also engaged in honey production, which is sold locally and distributed to urban areas and larger trading centers.</p> <p>Distances to urban centers, inadequate transportation, poor road networks and a precarious civil security situation limits household access to markets. Crops and livestock are typically sold locally and taken to larger trading centers within each of the governorates. Grains are imported internationally reaching the local/district markets via Aden and larger regional trading centers. The demand for labor is mostly on farms within the livelihood zone; however, some household members may find casual work in towns within the zone or travel to Sana’a, Aden, or Hadramout.</p> <p>Inadequate and erratic rainfall, civil security, floods, and increased food prices are some of the common hazards households in this zone face. Having fewer options to cope, the poor are limited to increasing the sale of livestock and sending one or two household members outside the zone to look for work. Better-off households will defer the consumption of crops and sell most of their harvest, increase livestock sales, and increase trading activities.</p>
<b>Sold Crops</b>	Sorghum Wheat Dates Market-gardening	
<b>Livestock</b>	Goats Camels Sheep	
<b>Cash Income</b>	Crop sales Daily labor Livestock sales Honey sales	
<b>Main Markets</b>	Al Jawf Shabwah Hadramut Al Maharah Sana’a	
<b>Hazards</b>	Rain failure Civil insecurity Floods High prices	

<b>Livelihood Zone #5 – Central Highland Potato, Vegetable and Livestock Zone</b>		
<b>Food Crops</b>	Potato Wheat Beans Vegetable	<p>Households living in the potato, wheat and barley dependent areas of Ibb, Dhamar and Amran governorates were grouped under the same livelihood zone, as most households share the same access to food and income. Though this densely populated zone receives between 400-750 mm of rainfall annually, nearly 80% of the cultivated land is irrigated. Wheat, vegetables, and beans are the main crops grown for consumption, while potatoes, wheat, and barley are produced for sale. Sheep, goats, and cattle are the main types of livestock raised in the zone, supplementing household income and contributing to annual food requirements.</p> <p>For most households crop production is the main source of food, followed by livestock products and purchases. Though food sources were ranked similarly across wealth groups, there may be differences on the extent household rely on these sources and the types of foods consumed.</p> <p>Agricultural production is the main economic driver in this zone with better-off households earning most of their annual cash from crop sales. Livestock sales (mostly sheep and goats), as well as remittances, are secondary and tertiary sources of income. Owning less cultivable land and little livestock, the poor are unable to earn cash from their own production and therefore must rely on labor opportunities locally to meet their cash needs. In addition to labor sales, poor households will rely on remittances and gifts (<i>zakat</i><sup>7</sup>) to supplement their annual income.</p> <p>Market access is considered very good as the zone is closer to major urban centers and reliable road networks ensure a steady flow of commodities. Potatoes, wheat, and barley are sold locally and taken to Sana'a and other trading centers near the zone as well as along the roadside.</p> <p>Erratic and insufficient rains, crop pest, and frost are the main hazards affecting access to food and income. Having limited options to cope, poor households will migrate to other areas in search of work or rely on friends, family, and neighbors to provide food or cash assistance. Better-off households will consume food stock, sell additional livestock, and petition family members living outside the zone to increase the frequency and quantity of remittances.</p>
<b>Sold Crops</b>	Potatoes Wheat Barley	
<b>Livestock</b>	Sheep Goats Cattle	
<b>Cash Income</b>	Crop sales Livestock sales Remittances Daily labor Gifts	
<b>Main Markets</b>	Sana'a Ibb Dhamar Amran	
<b>Hazards</b>	Rain failure Frost Crop disease	

<sup>7</sup> Zakat is the giving of a small percentage of one's possessions (surplus wealth) to charity.

**Livelihood Zone #6 – Eastern Plateau Sorghum, Millet and Livestock Zone**

<b>Food Crops</b>	Millet Sorghum Wheat Sesame	<p>This sparsely populated cereal-producing livelihood zone is situated in the northwestern part of Marib Governorate and the southwestern fringes of Al Jawf Governorate. Wheat and sorghum are the main crops produced in the zone; however, production is often limited to low rainfall. These crops, in addition to sesame and fenugreek, are also cultivated for sale. Livestock (specifically sheep, goats, and camels) are kept by most households providing food and cash.</p> <p>Low crop yields force most households to rely more on purchased food than food produced from their fields. Though crops are produced for consumption, the contribution they make to annual household food needs is less significant than that of purchased food. Households will also fill remaining food needs by consuming livestock products.</p> <p>To cover the expense of purchased foods, households will rely on selling some of their livestock. This income source is less important to poorer households as their livestock holdings are far less than that of their better-off neighbors. In addition to livestock sales, the better-off will sell some crops. The poor rely on labor opportunities as their main income source and fill additional cash needs with livestock and firewood sales.</p> <p>Distances to larger trading centers and poor road networks make commodity flows within the zone difficult. Grains and livestock from the zone are sold locally and then taken to Marib City or to Sana’a. Purchased food, mostly wheat and rice, originate from the international market and are imported via Hadaydah port and transported to regional and then local trading centers. Limited on-farm labor opportunities force most households to send one or two members to find work outside the zone.</p> <p>Poor rainfall, crop diseases, and civil insecurity are among the top hazards affecting household food security. Poor households compensate for deficits by employing one or more of the following coping strategies: reduce qat consumption, increase labor sales, and increase livestock sales. The better-off mostly sell livestock.</p>
<b>Sold Crops</b>	Sesame Fenugreek	
<b>Livestock</b>	Goats & sheep Camel	
<b>Cash Income</b>	Livestock sales Crop sales Daily labor Firewood sales	
<b>Main Markets</b>	Marib Al Jawf Sana’a	
<b>Hazards</b>	Crop failure Crop disease Civil insecurity	

Livelihood Zone #7 – Greater Yemen Coastal and Island Fishing Zone		
<b>Food Crops</b>	N/a	<p>The <i>Greater Yemen Coastal and Island Fishing Zone</i> covers the length of the Yemen’s shoreline and the surrounding islands. Livelihoods in this zone are driven by fishing-based activities such as artisanal and industrial fishing, fishing labor, processing, and marketing. Some households may also engage in small-scale farming activities, but the majority of the zone’s residents mostly rely on fishing to meet their annual food and cash needs.</p> <p>There are some differences between fishing households living along the Red Sea and those on the Gulf of Aden. Nonetheless, in terms of food and cash access, their similarities outweighed the differences and households residing on both coasts were thus grouped under one livelihood zone. Livestock keeping, especially sheep and goats, is common amongst all households in the zone. Herd size usually parallels household wealth, with better-off households owning more than the poor do.</p> <p>All households in this zone purchase the bulk of their annual food needs, financing this crucial expense by engaging in fishing-related activities. Fish consumption is also important to a household’s diet, followed by livestock products such as milk, ghee, and meat. Those that engage in agricultural activities may compliment the aforementioned food sources with their own crops.</p>
<b>Sold Crops</b>	N/a	
<b>Livestock</b>	Goats Sheep Cattle	
<b>Cash Income</b>	Fish sales Livestock products Livestock sales Labor sales	
<b>Main Markets</b>	Aden Sana’a Mokha Dhubab	
<b>Hazards</b>	Fish marketing Environmental degradation Dengue Competition over existing resources	<p>Better-off households earn most of their cash from catching and selling fish at local launch points that speckle the length of Yemen’s coastline. Additionally, they will sell sheep and goats throughout the year. Some may also be employed at larger fish processing plants, government offices, or in the private sector. Poorer households typically earn cash by laboring on fishing boats. They may also engage in traditional or artisanal fishing activities, followed by livestock sales. Households living along the Gulf of Aden coast may earn more than their neighbors along the Red Sea<sup>8</sup>.</p> <p>Markets are located along Yemen’s coast at the various boat launching areas and adequate road networks connect the zone to larger trading centers throughout the country. Livestock is sold locally and taken to larger trading centers and then to Sana’a. Households living closer to Mokha and Dhubab benefit from the large influx of livestock from the Horn of Africa. The strong livestock markets in these two areas offer a range of livestock related income activities. Wheat and rice from international markets are imported via all major ports of entry and transported to provincial trading centers and then down to local markets.</p> <p>Fishing attracts laborers from within the zone and from other areas in the country. Some of the zone’s labor force may also find employment opportunities as casual (non-fishing) laborers in towns, and a minority may travel as far as Sana’a or Saudi Arabia in search of work.</p> <p>Fish marketing, environmental degradation, dengue, and competition over existing resources are the main factors influencing household food security in the zone. Additionally, households in Lahj, Abyan, and Shabwah may also be affected by the skirmishes between GoY forces and Southern Secessionist Militants. People throughout the zone will engage in a number of coping strategies to mitigate vulnerability to food insecurity. Poor households will migrate out of the zone to look for employment</p>

<sup>8</sup> FAO/World Bank. Small fisheries in Yemen: Social Assessment and Development Prospects

		opportunities, seek assistance from family and friends, reduce the number of meals consumed, or purchase cheaper foods. Better-off households are more resilient to shocks than the poor and will cope by increasing the number of livestock they sell, trading activities, look for salaried work, or rely on savings.
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**Livelihood Zone #8 – Northern and Eastern Desert Pastoral Zone**

<b>Food Crops</b>	Wheat Sorghum	<p>This large, sparsely populated livelihood zone stretches across most of Al Jawf and the northern reaches of Shabwah, Hadramut and Al Maharah governorates. Low annual precipitation and the desert agro-ecology dictate livelihood options in this zone. Most households are transhumanant pastoralists; however, some sedentary pastoralists engage in opportunistic farming towards the southern parts of the livelihood zone. Livestock keeping, particularly goats, camels and cattle, provide most households with their annual cash and food requirements. The contribution of livestock milk and meat to annual food requirements is often minimal and therefore most households must rely on purchased food.</p> <p>Livestock keeping, particularly goats, camels and cattle, is the main economic activity for most households in the zone. Better-off households also earn income by trading and smuggling goods and from remittances received from family members living in Saudi Arabia. Poor households supplement their annual income working for better-off households as herders or water-fetchers, or in larger trading centers as casual laborers.</p> <p>Though smaller trading centers are scattered throughout the zone and within each district, market access is limited due to poor road networks and long distances. Larger trading centers are located along the main asphalt road, which transects the zone from west to east. Livestock is sold locally and transported to regional markets and finally to larger trading centers throughout the country and abroad. Purchased grains, wheat and sorghum originating from Sana’a or Oman, are transported to regional trading centers, and then to district and local markets. Labor is sold locally, at trading centers and/or urban areas within the livelihood zone. Some laborers may migrate to Saudi Arabia, Sana’a, Ghida, Hawaf, or Hawt.</p> <p>Inadequate and erratic rainfall, livestock diseases, and civil unrest are the major impediments to household food security. Harsh environmental conditions foster the risk of food insecurity in the zone and a household’s ability to recover from hazards largely depends on the resources available. Though all households will sell livestock during hard times, the better-off are capable of selling more animals without risking livelihood and/or future food security. The better-off will also increase trading activities: grains, non-food items, people smuggling and cars. Poorer households generally rely on available social networks (gifts from friends and neighbors and remittances), small stock sales, and migration to other areas in search of labor.</p>
<b>Sold Crops</b>	N/a	
<b>Livestock</b>	Goats Camels Cattle	
<b>Cash Income</b>	Daily work Remittances Trade Livestock sales Livestock keeping	
<b>Main Markets</b>	Sana’a Al Jawf Shabwah Hadramut Al Maharah	
<b>Hazards</b>	Rain failure Livestock disease Civil unrest	

<b>Livelihood Zone #9 – Sa’adah Irrigated Wheat, Fruit, Vegetables, Qat and Livestock Zone</b>		
<b>Food Crops</b>	Wheat Sorghum Vegetables	<p>This agriculture-based livelihood zone covers most of Sa’adah Governorate and extends into the northern fringes of Amran Governorate. Livelihoods in this mountainous zone are normally driven by the production of grains (mostly wheat and sorghum), fruits (such as apples, pomegranates and citrus), and vegetables. Since 2004, the Government of Yemen has been fighting the Al Houthi rebels, with most of the fighting occurring in the Sa’adah Governorate. Livelihoods have since dramatically changed as fighting has limited many households’ access to farmlands and markets. The geographic scope of this hazard was not clearly defined nor was the level of assistance households living in this zone may need. The following description illustrates livelihood patterns before the start of the conflict (2004).</p> <p>Wheat, sorghum, and vegetables were the main crops grown for consumption, whereas qat, fruits, and vegetables were sold at local markets. In addition to agriculture activities, households also sold livestock, mostly sheep, goats, and cattle.</p> <p>Access to food varied across wealth group with better-off households sourcing most of their food from their fields. They would also purchase food from the market and consume milk and meat from their animals. With limited land holdings, poor households are unable to meet their food needs from their own production and therefore, rely on purchased food from the local markets. Additionally, poor households would receive payment in grains for working on the farms of better-off households.</p> <p>The zone’s economy was driven by the production of cash crops, specifically fruits and qat. The sale of cash crops accounted for the majority of better-off households’ annual income, which was supplemented by livestock sales and trade activities. The poor mostly relied on farm labor activities, being paid in cash and in kind. They would also herd other households’ animals, seek casual labor activities outside the zone, and receive remittances from relatives working in Saudi Arabia.</p> <p>Before the conflict, access to markets in the zone was good. Markets were close to production areas and transportation was readily available. Cereals were sold locally and the high-valued fruits were sold to traders and then taken to Sana’a or to Saudi Arabia. Livestock was also sold at local trading centers then taken to Sana’a or Saudi Arabia. Given the importance of agriculture, this zone attracted laborers from within and from outside of the livelihood zone. Most laborers went to the fruit producing areas of Sayar, Alsaфра, Madj, Zeid, and Sa’adah town.</p> <p>Aside from conflict, other hazards such as erratic and insufficient rains are the main impediments to food and cash access. Livestock sales are the most common strategy households use to recover from any hazard induced deficit; however, the degree to which households are able to exploit this strategy is contingent upon their wealth. In addition to livestock sales, the poor population in the zone will</p>
<b>Sold Crops</b>	Qat Fruits Vegetables Livestock sale (sheep, goat, and cattle)	
<b>Livestock</b>	Sheep Goats Cattle	
<b>Cash Income</b>	Fruits Qat Livestock sales Trade Casual labor Remittances	
<b>Main Markets</b>	Sa’adah Amran Sana’a Saudi Arabia	
<b>Hazards</b>	Rain failure Crop disease Livestock disease	

		<p>petition relatives to increase the frequency and amount of remittances, search outside the zone for labor opportunities, and borrow from friends and neighbors.</p> <p>It is expected that successive years of conflict have chipped away at the asset base of all of the zone's residents and that many have resorted to negative coping strategies to survive. Since August 2009, food aid has been provided by the ICRC; nonetheless, many households have fled Sa'adah and parts of Amran to escape the violence. The continuation of the conflict may force the remaining households to employ negative coping strategies, such as joining the insurgent movement to survive, which would exacerbate an already complicated emergency.</p>
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Livelihood Zone #10 – Western and Central Highland Qat, Grain, Fodder, Livestock Zone		
<b>Food Crops</b>	Sorghum Millet Maize	<p>Households living in the sorghum, millet, maize and qat dependent areas of Taizz, Al Dhale'e, Al Bayda, and Marib governorates share the same access to food and income and were therefore grouped under one livelihood zone. This densely populated, mountainous, mixed agriculture zone receives between 150 to 400 mm of rainfall annually, which provides moisture to the main crops grown: sorghum, millet, maize, and qat. Qat production is the main economic driver in this zone providing households with a reliable source of cash throughout the year. Most of the grains that are produced in the zone are sold as animal fodder. As in other highland livelihood zones livestock plays an integral part of how household access food and cash. Sheep, goats, and cattle are sold throughout the year and the milk and meat produced contributes to household diets.</p> <p>Qat's popularity in Yemen ensures a steady demand for the crop and encourages farmers to dedicate more of their land to its cultivation. However, given the zone's dense population, land size available for agricultural cultivation is limited. Better-off households typically cultivate more land and can afford to allocate more land to qat production. For this reason, they are unable to produce enough grains to cover most of the food needs and must rely on the market as their primary source of food. The poor also rely heavily on market purchases; however, the reasoning is not linked to how much land is used for qat production. Instead, the poor in these areas are limited by their small land holdings and choose to use most of their land for grain production, but the amounts they can harvest are usually insufficient.</p> <p>Qat sales are the main income source for the better-off, followed by trading activities and livestock sales. The poor mostly rely on labor provided by their better-off neighbors and supplement their income with livestock sales and credit.</p> <p>Extensive road networks connect this zone with larger regional trading centers, allowing for a steady stream of commodities to flow into and out of the zone. Qat is sold locally to traders who then distribute it to the larger trading centers throughout the country and export it to Saudi Arabia. Purchased grains (wheat and rice) are brought in from international markets via Hadaydah or Aden and then transported to the smaller district markets scattered throughout the zone.</p> <p>Erratic and insufficient rain, crop and livestock disease, and civil insecurity are among the major impediments to food security in the zone. Poor households will employ one or more of the coping strategies to offset cash or food deficits incurred by hazards: increase labor sales, increase livestock sales, borrow from friends and neighbors, and reduce meals and non-essential expenditures. Better-off households will sell livestock and will also increase remittances and engage in petty trading activities.</p> <p><i>The Al Bayda parts of the zone also cultivate fruits and vegetables.</i></p>
<b>Sold Crops</b>	Sorghum Millet Maize Qat	
<b>Livestock</b>	Sheep Goats Cattle	
<b>Cash Income</b>	Crop sales Qat sales Trade Casual labor Livestock sales Credit Remittances	
<b>Main Markets</b>	Taizz Al Dhale'e Al Bayda Marib	
<b>Hazards</b>	Crop failure Crop disease Livestock disease Civil insecurity	

**Livelihood Zone #11 – Western and Central Wadi Sorghum, Millet, Vegetable, Fruit and Livestock Zone**

<b>Food Crops</b>	Sorghum Millet Maize Vegetables	<p>This livelihood zone covers parts of Hajjah, Hadaydah, Taizz, Lahj and Abyan governorates. Households in this <i>wadi</i> zone depend on grains, fruits and vegetables for both cash and income and therefore were grouped under one livelihood zone. Livelihoods are dependent on <i>wadi</i>-irrigated agriculture, in particular the cultivation of grains, fruits, and vegetables. Sorghum, millet (maize in Lahj), and vegetables are produced for household consumption and sale. Livestock keeping is also an integral part of household livelihoods, providing milk and meat and contributing significant amounts of cash to annual incomes.</p> <p>Poor households cultivate small plots of land and therefore produce minimal amounts of food for consumption. The bulk of their food is sourced as payment in grain for working on better-off households' farms. This is supplemented with food purchased from the market. With larger land, holdings and the ability to afford hired labor, better-off households produce significant amounts of crops. Crops production is their primary source of food but they may also buy food from the market according to need, as well as consume products obtained from their animals.</p> <p>Income earned for most households comes from the crops production. For the poor, cash is earned through agricultural labor sales, whereas better-off households earn most of their cash through crop sales. Livestock sales are another income source for all households however, poor households will earn more collecting and selling firewood.</p> <p>Market proximity and reliable road networks ensure a steady flow of commodities into and out of the zone. Households are capable of selling their goods, as well as purchasing essential food and non-food items throughout the year. Grains and vegetables are sold at local markets and transported to larger trading centers and then on to urban markets. Fruits will also share this route; however, they are finally exported abroad. Staples purchased (wheat and rice) are imported via the ports of Aden or Hadaydah and then taken to smaller markets across the zone. The zone's labor demand absorbs workers from within and from outside of the zone.</p> <p>This zone is affected by an array of hazards including insufficient rainfall, crop diseases and pests, livestock diseases and high agricultural input prices. With limited resources to rely on during normal years, the poor are more vulnerable to shocks as they occur and have few options to recover from hazard-incurred food or cash deficits. Increased sale of labor, credit, and gifts are some of the few choices poor households have during times of crisis. The better-off typically are more resilient as they can sell additional livestock without future implications and/or use food stocks or savings.</p>
<b>Sold Crops</b>	Sorghum Millet Maize Vegetables	
<b>Livestock</b>	Sheep Goats Cattle	
<b>Cash Income</b>	Crop sales Firewood sales Milk sales Labor sales Credit Gifts	
<b>Main Markets</b>	Hajjah Hadaydah Taizz Lahj Abyan	
<b>Hazards</b>	Crop failure Crop disease Livestock disease High agricultural input prices	

**Livelihood Zone #12 – Western Central Highland Coffee, Qat, Sorghum and Livestock Zone**

<b>Food Crops</b>	Sorghum Pulses Vegetables	Households living in the coffee, qat and sorghum dependent areas of western Sa’adah, Al Mahwit, Al Dhale’e, Ibb, Raimah Amran, Sana’a and Marib governorates share similar livelihood patterns and therefore were grouped under one livelihood zone. This densely populated, mountainous, agriculture-based livelihood zone receives between 800-1200 mm of rainfall annually. Sorghum, pulses, and vegetable are the main crops cultivated for consumption, while coffee, qat, and sorghum are produced for sale. Livestock holdings are another important resource that households rely on for both food and income.
<b>Sold Crops</b>	Coffee Qat Sorghum	
<b>Livestock</b>	Sheep Goats Cattle	
<b>Cash Income</b>	Labor sales Livestock sales Milk sales Crop sales Firewood sales	Though livelihoods are driven by agriculture, all households depend heavily on the market to source the bulk of their food. Small landholdings and the preference of cultivating cash crops over food crops are two factors why households cannot meet most of their own food needs through cultivation. Better-off households may grow some food crops but reserve most of their land for qat and coffee production. Poor households reserve most of the cultivable land for food production; however, with smaller landholdings, they produce less and therefore must buy more than their better-off neighbors.
<b>Main Markets</b>	Sa’adah Al Mahwit Al Dhale’e Ibb Raimah Amran Sana’a Marib	For cash, the poor rely on labor, livestock, and firewood sales, whereas the better-off sell livestock, crops, and livestock products. Most of the labor sold is done in the rural areas of the zone; however, many may also temporarily migrate to larger trading centers or to larger cities throughout the country to look for casual labor.  Market access in this zone is generally fair, with the exception of Raimah Governorate. Road networks in the zone are good and the proximity to trading centers is relatively close. Transportation, however, was reported to be an impediment to market access. Cash crops such as coffee and qat are sold locally and taken to Sana’a or Hadaydah, whereas sorghum is mostly sold locally. Livestock, mostly cattle, goats and sheep, are also traded locally and transported to the major towns within the livelihood zone or transported to Sana’a or Hadaydah.
<b>Hazards</b>	Crop failure Crop pests Crop disease Livestock disease	The main hazards affecting household access to food and income are erratic and insufficient rainfall, crop pests, and crop and livestock diseases. As an immediate response, household may sell goats or sheep to offset deficits. However, successive years of hazards will erode poorer households’ asset base, rendering them more vulnerable to future shocks and push them closer to food insecurity. In addition to livestock sales, the poor may migrate to other areas in search of labor or collect and consume wild foods. The better-off may increase trade activities or tap into their grain or cash reserves.

Livelihood Zone #13 – Western and Central Highland Wheat, Sorghum, Qat and Livestock Zone		
<b>Food Crops</b>	Wheat Sorghum Maize	<p>Households living in the wheat, sorghum and qat dependent areas of Hajjah, Al Mahwit, Amanat, Al Asimah, Sana’a, Dhamar, Ibb and Al Dhale’e governorates share the same access to food and income and therefore were grouped under one livelihood zone. Most households in this relatively fertile livelihood zone rely on 600-900mm of rainfall annually while those that can afford the resources needed to implement an irrigation<sup>9</sup> system may compliment the rainfall with groundwater extraction. Nearly all households in this densely populated zone produce grains, such as wheat, sorghum, and maize. Qat is the primary cash crop in the zone followed by grains. Livestock holdings, mostly goats and sheep, provide households with food, milk and meat, and cash.</p> <p>Having larger landholdings, the better-off households in this zone are capable of producing significant quantities of food; however, the amounts produced fall short of providing them with all of their annual food needs and therefore must be supplemented with food purchased from the market. Though poorer households also produce crops for household consumption, the amount harvested is less than their better-off neighbors. Therefore, poorer households are more reliant on food purchased from the market.</p> <p>Qat sales are the main cash earner in the zone, supplying better-off households with most of their annual income and providing ample labor opportunities for the poor. The better-off supplement their annual qat earnings by selling goats and sheep, while the poor collect and sell firewood in addition to their labor sales.</p> <p>Market access in this zone is good as road networks link the zone to the larger trading centers. Qat is sold locally and is distributed to the larger trading centers throughout the western part of the country. Cereals are typically sold locally and traded within the zone, whereas most of the livestock sold is transported to the capital, Sana’a. Purchased grains, imported wheat and sorghum are brought in from the ports at Al Hadaydah or Aden and are transported to larger trading centers in the zone, and then on to local markets.</p> <p>Though food and cash income decreases after a shock, most better-off households are able to cover deficits through consumption of food stocks, increased trading, livestock sales, and increased reliance on remittances from family members living in urban areas or abroad. The poor are more prone to food insecurity as they lack the necessary resources to recover from hazards. They may send one or two household members to search for labor opportunities, increase borrowing or gifts, purchase cheaper grains, and/or reduce number of meals consumed in a day.</p> <p><i>Areas of Bani Al Harith, Arhab, Bani Hushaysh, Nihm and Khwlan share similar characteristics with this zone however grape production serves as the dominant agricultural activity.</i></p>
<b>Sold Crops</b>	Wheat Sorghum Maize Qat	
<b>Livestock</b>	Sheep Goats Cattle	
<b>Cash Income</b>	Qat sales Livestock sales (goats and sheeps) Labor sales Crop sales Firewood sales Remittances	
<b>Main Markets</b>	Hajjah Al Mahwit Amanat Al Asimah, Sana’a, Dhamar Ibb Al Dhale’e	
<b>Hazards</b>	Crop failure Crop disease Livestock disease	

<sup>9</sup> Fuel cost for ground water extraction is subsidized by the Yemeni government.

<b>Livelihood Zone #14 – Western Coastal Plain Sorghum, Millet and Livestock Zone</b>		
<b>Food Crops</b>	Sorghum Millet	<p>This moderately populated livelihood zone extends along the Tahama coastal plain from Hajjah, south to Taizz, and eastward across parts of Lahj and Abyan Governorates. Households in this zone are dependent on agricultural activities and livestock keeping to achieve their annual cash and food needs. Sorghum and millet are the most common grains grown for household consumption; however, sorghum is also cultivated for livestock fodder.</p> <p>Consumption of grains and livestock products varies across wealth groups. Better-off can produce enough to cover most of their food needs but will also purchase food throughout the year according to need. Having less access to land, the poor are unable to produce enough to meet their needs and therefore depend more on market food purchases. They will also get some of their food as in-kind payment for working on better-off households' farms.</p> <p>Grain sales are the main source of income for better-off households followed by livestock and livestock product sales. Some households living in Al Hadaydah, Abyan, and Lahj Governorates may also cultivate and sell cotton. The poor earn the bulk of the cash performing agricultural labor for better-off households. A smaller portion of their cash comes from selling crops and livestock.</p> <p>Accessible road networks connect the zone's producers to markets and allow a steady stream of commodities to flow into and outside of the zone. Grains are sold locally to traders who then transport them to larger district and governorate trading centers. Livestock is also sold locally, trucked to larger trading centers and then to major markets in Sana'a City, Aden, or Hajjah. The main grains bought are sorghum and millet, are imported into the country via the ports at Al Hadaydah and Aden, to larger zonal trading centers, then to local markets. The labor market is concentrated in the rural areas but some may work in urban areas as casual laborers. A minority of the population will travel as far as Saudi Arabia in search of work.</p> <p>Erratic and insufficient rainfall, lack of ground water and crop pest are ranked as the major hazards in the zone. To offset deficits incurred by hazards, better-off households will sell additional livestock, increase trade activities, and sell more grain. Poorer households will also sell livestock but the amount sold is less than their better-off neighbors. They will also solicit more remittances from relatives and migrate out of the zone in search of labor opportunities. Water salinity may become an increasing problem to farmers in this zone as well as those living in the neighboring <i>Central and Eastern Wadi Wheat, Vegetable and Livestock Zone</i>, where many laborers migrate to in search of work. As the salinity of the water table increases, crop yields will decrease. This will likely affect crop sales as well as the demand for labor opportunities</p>
<b>Sold Crops</b>	Sorghum Millet Cotton	
<b>Livestock</b>	Sheep Goats Cattle	
<b>Cash Income</b>	Grain sales Livestock sales (goats and sheeps) Livestock product sales Labor sales Crop sales Remittances	
<b>Main Markets</b>	Hajjah Taizz Lahj Abyan Sana'a Aden	
<b>Hazards</b>	Crop failure Lack of ground water Crop pest Water salinity	

## Seasonal Calendar – Yemen – January 2010

### Zone 1: Amran Rainfed Sorghum, Barley, Qat and Livestock

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Legend</b>		Land prep.		Planting			Weeding			Harvesting		
<b>Crops</b>												
Sorghum												
Millet												
Sesame												
<b>Livestock</b>												
Milk production												
Livestock sales												
<b>Other</b>												
Local labor												
Labor migration to Saudi Arabia												
Food purchases												
Firewood collection and sale												
Time of food shortages												
<b>Rainy Seasons</b>												

## Seasonal Calendar – Yemen – January 2010

### Zone 2: Arabian Sea Coastal Irrigated Tropical Fruit, Fodder and Livestock

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Legend</b>		Land prep.		Planting			Weeding			Harvesting		
<b>Crops</b>												
Sorghum/maize - season 1												
Sorghum/maize - season 2												
Onion												
Tomatoes												
Fruits (Orange and dattes)												
<b>Livestock</b>												
Camel milk production												
Cattle milk production												
Livestock sales												
<b>Other</b>												
Local labor												
Labor migration												
Remittances												
Food purchases												
Time of food shortages												
<b>Rainy Seasons</b>												

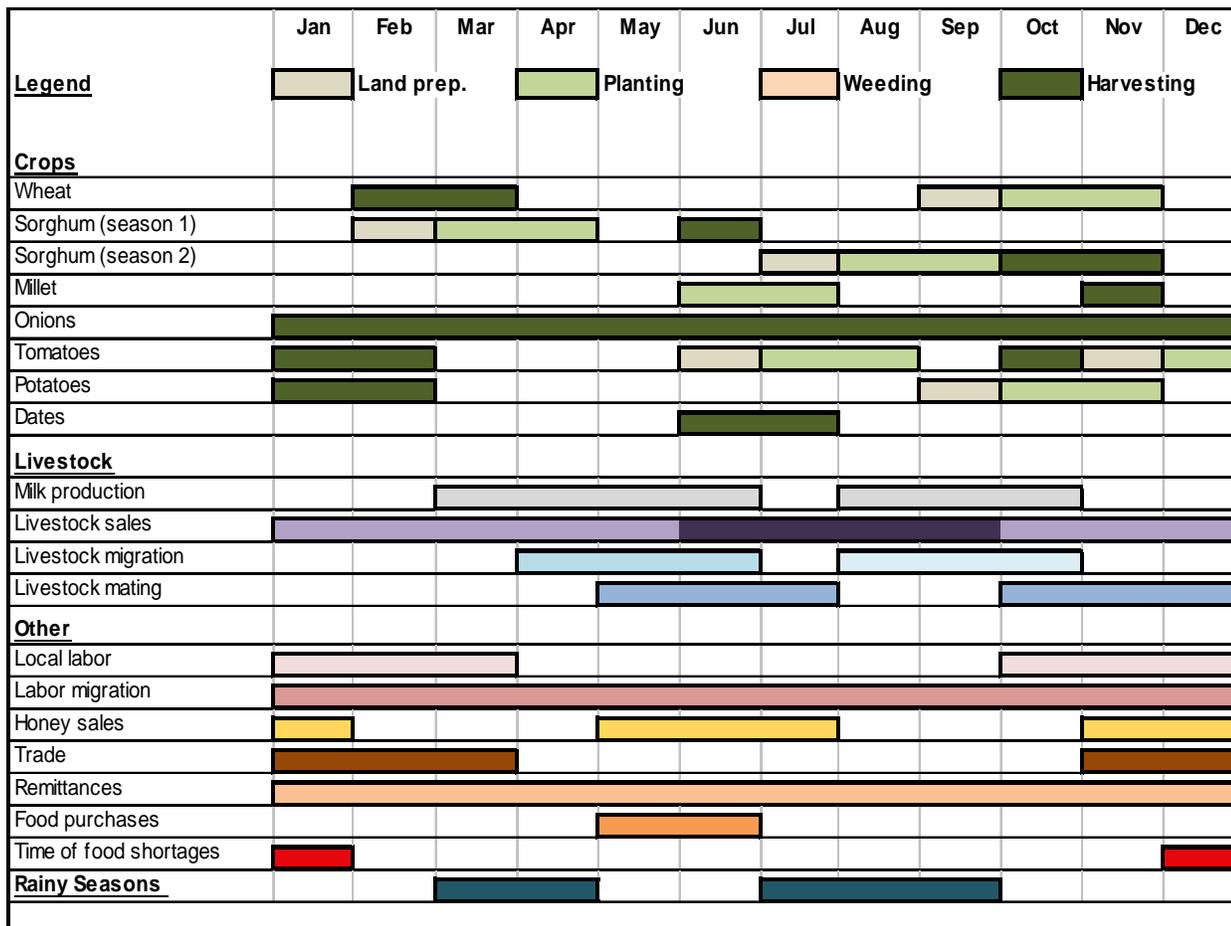
## Seasonal Calendar – Yemen – January 2010

### Zone 3: Central and Eastern Plateau Agro-Pastoral Zone

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Legend</b>		Land prep.		Planting			Weeding			Harvesting		
<b>Crops</b>												
Wheat												
Sorghum - season 1												
Sorghum - season 2												
Sesame												
<b>Livestock</b>												
Milk production												
Livestock sales												
Livestock migration												
Livestock mating												
<b>Other</b>												
Local labor												
Labor migration												
Honey sales												
Food purchases												
Time of food shortages												
<b>Rainy Seasons</b>												

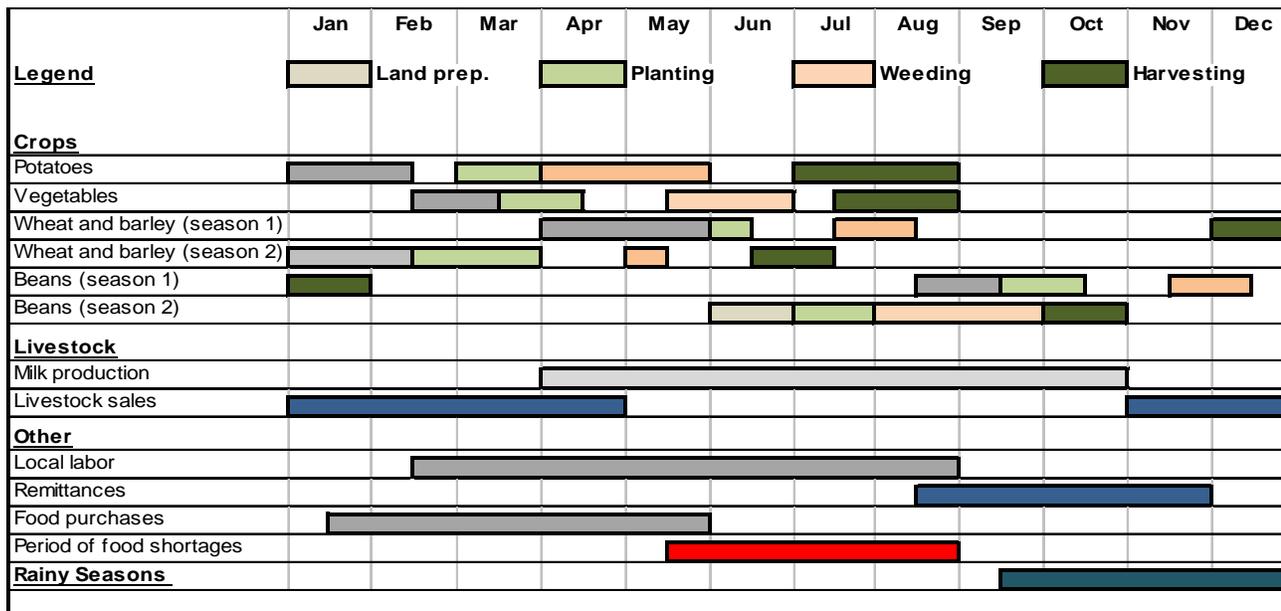
# Seasonal Calendar – Yemen – January 2010

## Zone 4: Central and Eastern *Wadi* Palm, Wheat, Vegetable and Livestock



# Seasonal Calendar – Yemen – January 2010

## Zone 5: Central Highland Potato, Vegetable and Livestock Zone



# Seasonal Calendar – Yemen – January 2010

## Zone 6: Eastern Plateau Sorghum, Millet and Livestock

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Legend</b>		Land prep.		Planting			Weeding			Harvesting		
<b>Crops</b>												
Sorghum		Land prep.	Planting	Weeding	Harvesting							
Millet		Land prep.	Planting	Weeding	Harvesting							
Sesame		Land prep.	Planting	Weeding	Harvesting							
<b>Livestock</b>												
Milk production												
Livestock sales												
<b>Other</b>												
Local labor												
Labor migration to Saudi Arabia												
Food purchases												
Firewood collection and sale												
Time of food shortages												
<b>Rainy Seasons</b>												

# Seasonal Calendar – Yemen – January 2010

## Zone 7: Greater Yemen Coastal and Island Fishing

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Legend</b>		Land prep.		Planting			Weeding			Harvesting		
<b>Crops</b>												
Fruits (banana and papaya)	Harvesting											
<b>Livestock</b>												
Livestock sales												
<b>Other</b>												
Fishing												
Lobster												
Salt mining												
Food purchases												
Time of food shortages												
<b>Rainy Seasons</b>												

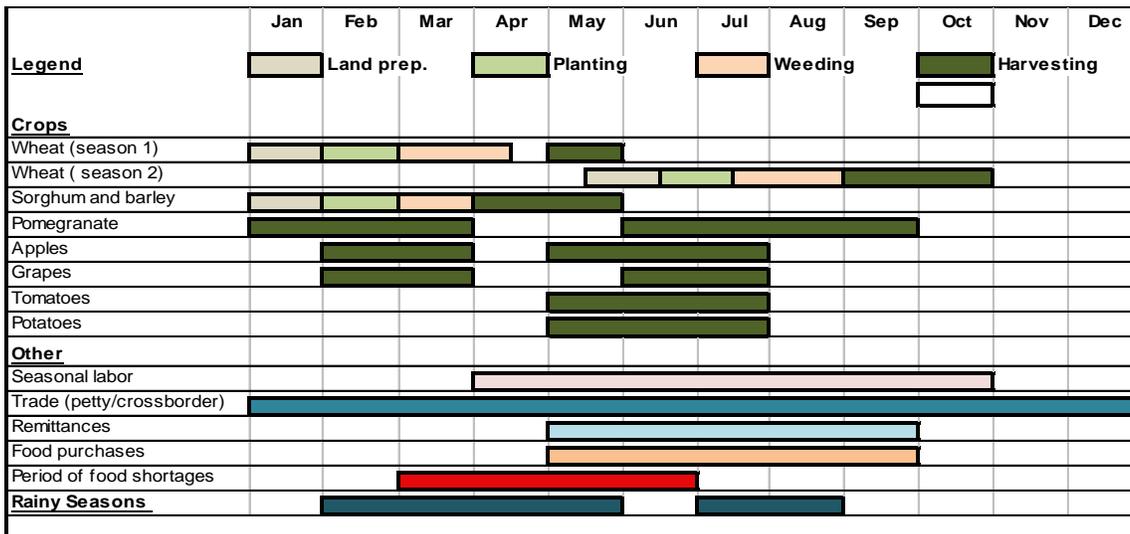
# Seasonal Calendar – Yemen – January 2010

## Zone 8: Northern and Eastern Desert Pastoral

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Legend</b>												
<b>Livestock</b>												
Milk production	■						■	■	■		■	
Livestock sales	■	■	■	■	■	■	■	■	■	■	■	■
Livestock migration							■	■	■		■	
Livestock mating	■											■
<b>Other</b>												
Labor migration			■	■	■	■	■	■	■	■	■	■
<b>Rainy Seasons</b>							■	■	■	■	■	■

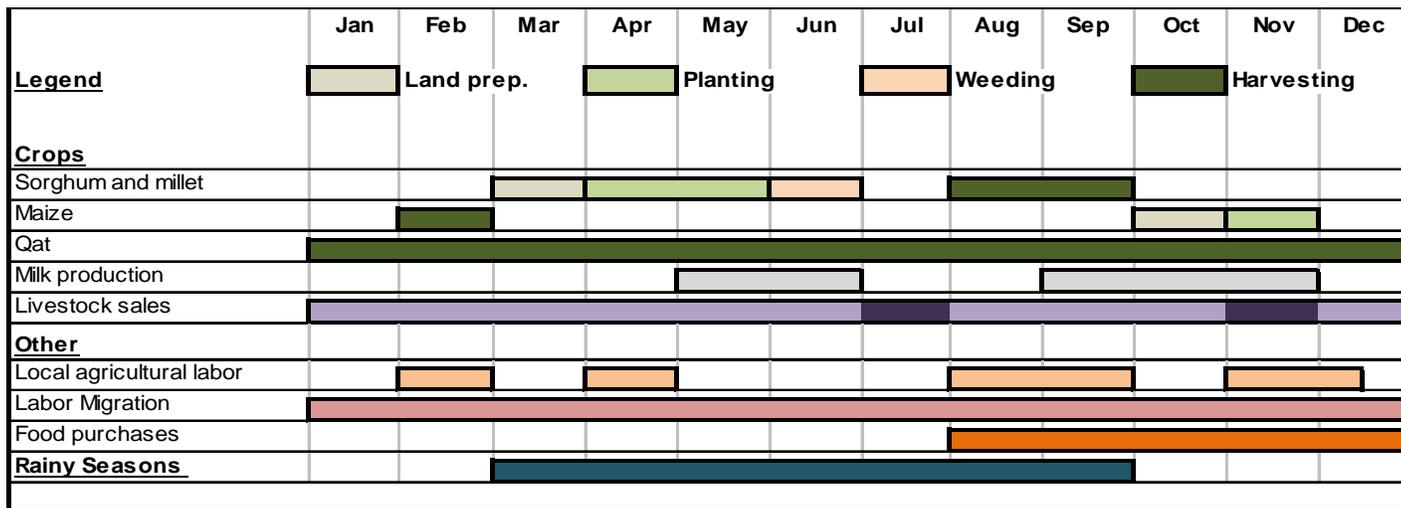
# Seasonal Calendar – Yemen – January 2010

## Zone 9: Sa’adah Irrigated Wheat, Fruit, Vegetables, Qat and Livestock



Seasonal Calendar – Yemen – January 2010

Zone 10: Western and Central Highland Qat, Grain, Fodder, Livestock



Seasonal Calendar – Yemen – January 2010

Zone 11: Western and Central *Wadi Sorghum, Millet, Vegetable, Fruit and Livestock*

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Legend</b>		Land prep.		Planting			Weeding			Harvesting		
<b>Crops</b>												
Sorghum												
Millet												
Vegetables												
Fruit												
<b>Livestock</b>												
Milk production												
Livestock sales												
<b>Other</b>												
Local labor												
Food purchases												
Firewood collection and sales												
Time of food shortages												
<b>Rainy Seasons</b>												

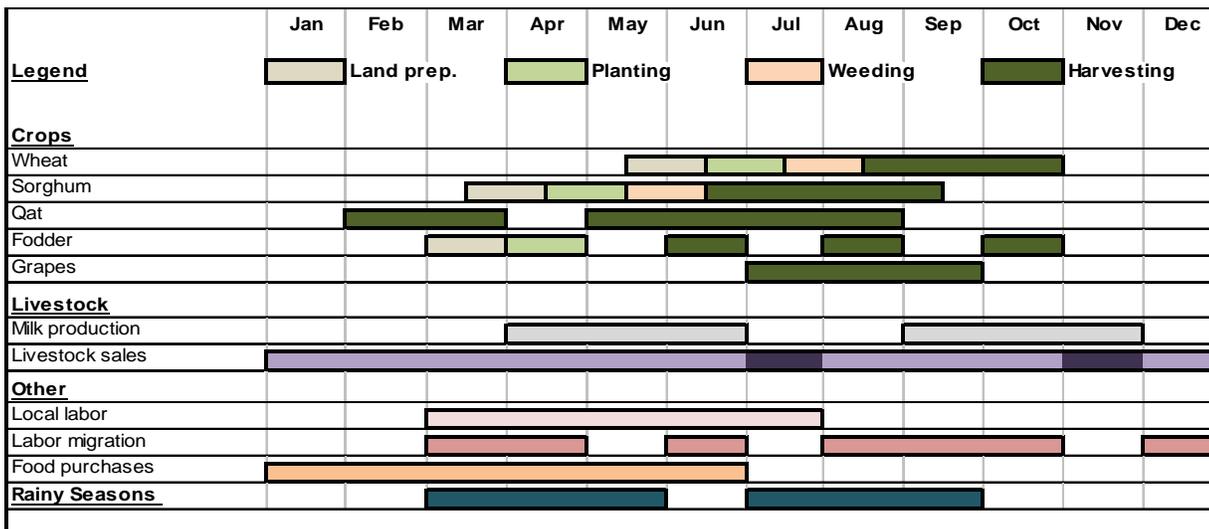
# Seasonal Calendar – Yemen – January 2010

## Zone 12: Western Central Highland Coffee, Qat, Sorghum and Livestock

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Legend</b>	Land prep.			Planting			Weeding			Harvesting		
<b>Crops</b>												
Wheat/barley (season 1)	Land prep.			Planting						Harvesting		
Wheat/barley (season 2)				Land prep.	Planting	Weeding	Harvesting					
Sorghum	Land prep.	Planting				Weeding	Harvesting					
Coffee				Planting						Harvesting		
Legumes (season 1)	Weeding	Harvesting								Land prep.	Planting	Weeding
Legumes (season 2)						Land prep.	Planting	Weeding	Harvesting			
<b>Livestock</b>												
Milk production												
Livestock conceptions												
Livestock sales												
<b>Other</b>												
Local agricultural labor												
Off-farm labor												
Food purchases												
<b>Rainy Seasons</b>												

# Seasonal Calendar – Yemen – January 2010

## Zone 13: Western and Central Highland Wheat, Sorghum, Qat and Livestock



# Seasonal Calendar – Yemen – January 2010

## Zone 14: Western Coastal Plain Sorghum, Millet and Livestock

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Legend</b>												
		Land prep.		Planting			Weeding			Harvesting		
<b>Crops</b>												
Sorghum												
Millet												
Cotton (some areas)												
<b>Livestock</b>												
Milk production												
Livestock sales												
<b>Other</b>												
Local labor												
Food purchases												
Time of food shortages												
<b>Rainy Seasons</b>												

## ANNEX 1: Livelihoods Zoning Plus Participant List

	Name	Organization	Geographic Area of expertise	Title	Phone # & email address
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