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FORE WARD

This Agro met Bulletin is prepared and disseminated by the National Meteorological Agency (NMA). The aim is to provide those sectors of the community involved in Agriculture and related disciplines with the current weather situation in relation to known agricultural practices.

The information contained in the bulletin, if judiciously utilized, are believed to assist planners, decision makers and the farmers at large, through an appropriate media, in minimizing risks, increase efficiency, maximize yield. On the other hand, it is vital tool in monitoring crop/ weather conditions during the growing seasons, to be able to make more realistic assessment of the annual crop production before harvest.

The Agency disseminates ten daily, monthly and seasonal weather reports in which all the necessary current information's relevant to agriculture are compiled.

We are of the opinion that careful and continuous use of this bulletin can benefit to raise ones agro climate consciousness for improving agriculture-oriented practices. Meanwhile, your comments and constructive suggestions are highly appreciated to make the objective of this bulletin a success.

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በጋ 2008/9
አህፅሮት

በመደበኛ ሁኔታ የበጋ ወቅት ፀሐያማና ደረቅ ሲሆን አልፎ አልፎ ያልተጠበቀ ዝናብ የሚታይበት ነው። ወቅቱ ከጥቅምት እስከ ጥር ያለውን ጊዜ ሲያጠቃልል የአገሪቱ ደቡብና ደቡብ ምሥራቅ ቆላማ ቦታዎች ወቅታዊ ዝናብ የሚያገኙበት ነው። በአብዛኛው መኸር አብቃይ በሆኑ አከባቢዎች የሰብል ስብሰባና ድህረ ሰብል ስብሰባ የሚካሄድበት ሲሆን በደቡብና በደቡብ ምሥራቅ የአርብቶ አደሩና ከፊል አረብቶ አደሩ አከባቢዎች ለግጦሽና ለመጠጥ ውሀ እንዲሁም ውሱን የሆነ እርሻ እንቅስቃሴ የሚካሄድበት ጊዜ ነው። በተጨማሪም በነዚሁ አከባቢዎች ለከብቶች ለግጦሽ ሳርና ለመጠጥ ውሃ የሚሆን ዝናብ የሚያገኙበትና ውሃን በተለያየ ዘዴ የሚያከማቹበት ወቅት ነው። የበጋ የአየር ፀባይ ለበሽታና ለተባይ መከሰት ተስማሚ የሆኑ ሁኔታዎች ከተከሰቱ ለበሽታና ለተባይ መስፋፋት አመቺ ሁኔታን የሚፈጥር ነው። በበጋ ወቅት የሙቀት መጠን ከአዝርዕት ጤናማ እድገት አኳያ ሊተኮርበት የሚገባ ጉዳይ ሲሆን በሰሜን ምስራቅ" በመካከለኛው በምስራቅ እና በደቡብ ከፍተኛ ቦታዎች ላይ የውርጭ መከሰት ሊኖር የሚችል ክስተት ነው።

እ.ኤ.አ በኦክቶበር 2008 ጠቅለል ባለ መልኩ በወሩ መጨረሻ አስር ቀናት ከሕንድ ውቅያኖስና ከአረብ ባሕር ወደ ሀገራችን በስፋት ሲገባ የነበረው እርጥበት አዘል አየር በትግራይና አማራ ምሥራቃዊ አጋማሽ፣ በአፋር፣ በአብዛኛዎቹ የኦሮሚያ፣ የደቡብ ብሔር ብሔረሰቦችና ሕዝቦች ክልል፣ በድሬዳዋ፣ በሐረሪና በጋምቤላ አካባቢዎች የተስፋፋ ዝናብ ተስተውሏል። ይኸው ሁኔታ ወቅታዊ ያልሆነ ዝናብ በመኸር አብቃይ አካባቢዎች በሰብል ስብሰባውና ድህረ ሰብል ስብሰባው እንቅስቃሴ ላይ አሉታዊ ተፅዕኖ ነበረው። ሆኖም ወቅታዊ ያልሆነ ዝናብ በተለያዩ የእድገት ደረጃ ላይ ለሚገኙና ፍሬ በመሙላት ላይ ላሉ በደጋማው መኸር አብቃይ አካባቢዎች ለሚገኙ ሰብሎች ጠቃሚነት እንደነበረው ይታመናል። በተጨማሪም በአርብቶ አደርና ከፊል አርብቶ አደር አካባቢ ለግጦሽና መጠጥ ውሃ አቅርቦት ጠቀሜታ ይኖረዋል። በጋ ሁለተኛ የዝናብ ወቅታቸው በሆኑት በደቡብ ኦሮሚያ በደቡብ ብሔር ብሔረሰቦችና ህዝቦች ክልል ደቡባዊ አጋማሽና በሶማሌ ደቡባዊ አጋማሽ አካባቢዎች የተስፋፋ ዝናብ በማግኘት ላይ በመሆናቸው በአካባቢዎቹ ላይ ላለው የእርሻ ሥራ እንቅስቃሴ ለግጦሽና ውሃ አቅርቦት የጎላ አስተዋፅየ ነበረው።

እ.ኤ.አ በኖቬምበር ወር 2008 ወቅታዊ ያልሆነ ከባድ ዝናብ (ከ30-142.8) ሚ.ሜ መካከል የሚገኝ በደቡብ ምዕራብ በስምጥ ሸለቆ እና በአጎራባች በደቡብ ምዕራብና በደቡብ ምስራቅ የሀገሪቱ ክፍሎች ላይ ተከስቶ ነበር። የጥቂቶችን ከ50 ሚ.ሜ በላይ ዝናብ የመዘገቡትን ለመጥቀስ ማይጨው፣ ደሎመና፣ ጊኒር፣ ኢጃጂ፣ ጅጅጋ፣ ሀገረማርያም፣ ያቤሎ፣ አለማያ እና ዝዋይ 58.8፣ 62.0፣ 68.2፣ 69.6፣ 73.2፣ 76.8፣ 80.8 ፣100.1 እና142.8 ሚ.ሜ እንደየቅደምተከተላቸው በአንድ የዝናብ ቀናት ብቻ ተመዝግቦባቸዋል ከዚህ ጋር በተያያዘ በተለያዩ ጣቢያዎች ላይ የሰብል ጉዳት ደርሶ ነበር። የጥቂቶቹን ጣቢያ ለመጥቀስ ያህል ከመካከለኛው በጊኒር በደረሱ ሰብሎች ላይና በቤት እንሰሳት ላይ፣ በሆሳዕና በስንዴና በጤፍ አዝመራ ላይ፣ በዝዋይ በዛፎችና በተለያዩ አዝመራ ላይ ከምዕራብ በአልጌ በደረሱ የጤፍና የቡና ሰብል ላይ፣ በሰሜን ምስራቅ በባቲ በጤፍ ሰብል ላይ፣ እንዲሁም በወገልጤና በደረሱ የገብስና የስንዴ ባቄላ ሰብሎች ላይ ጉዳት መድረሱን ከስፍራው በደረሰን መረጃ ማወቅ ተችሏል። ይሁን እንጂ ከወሩ ከመጀመሪያው ሳምንት በኋላ የበጋው ደረቅ የአየር ሁኔታ በአብዛኛው የሀገሪቱ ክፍል ከመስፈኑ ጋር በተያያዘ በአብዛኛው የሀገሪቱ ክፍሎች ላይ ዝናብ አልነበረም። ይህም ሁኔታ ለሰብል ስብሰባውና ድህረ ሰብል ስብሰባ አመቺ ሁኔታን ፈጥሮ ነበር በተጨማሪም በጥቂት የደቡብ ምዕራብና የደቡብ ኢትዮጵያ ኪስ ቦታዎች ላይ የነበረው አነስተኛ ዝናብ በተለያየ የዕድገት ደረጃ ላይ ላሉ ሰብሎችና በሀገሪቱ ደቡብ ቆላማ አካባቢዎች ለሚገኙ አርብቶ አደርና ከፊል አርብቶ አደር ለግጦሽ ሳርና ለመጠጥ ውሀ አቅርቦት አወንታዊ ተፅዕኖ እንደነበረው ይታመናል።

እ.ኤ.አ በዲሴምበር 2008 ለአብዛኛውን ጊዜ የበጋው ደረቅ አየር በከባቢ አየር ውስጥ ሲኖር በመቆየቱ የተነሳ መላው የሀገሪቱ ክፍል ደረቅና ፀሐያማ የአየር ሁኔታ አመዝኖባቸው ቆይተዋል። ይህም ሁኔታ ለመኸር ሰብል ስብሰባና ለድህረ ሰብል ስብሰባ እንቅስቃሴ አዎንታዊ ተፅዕኖ ነበረው። እንዲሁም በአንዳንድ አካባቢዎች ላይ ከ0^{0}C በታች የሆነ ዝቅተኛ የሙቀት መጠን ተመዝግቧል። ይሁን አንጂ በአዝርዕት ላይ ምንም አይነት አሉታዊ ተፅዕኖ እንዳልነበረው ከአዝርዕት መረጃ ክፍላችን ለማወቅ ተችሏል።በሌላ በኩል ደግሞ ወደ ሀገሪቱ በገባው መጠነኛ እርጥበት አዘል አዘል በወሩ የመጀመሪያና የመጨረሻ አስር ቀናት በአማራ በምዕራብ በመካከለኛውና በደቡብ ኦሮሚያ ደቡብ ብሔር ብሔረሰቦች ህዝቦች ክልል በባሌ ዞን በቤንሻንጉል ጉሙዝ እና በጋምቤላ ጥቂት ስፍራዎች ላይ ከቀላል እስከ መካከለኛ መጠን ያለው ዝናብ እንደጣለ ከየስፍራዎቹ የተገኙት የአየር ሁኔታ መረጃዎች ይጠቁማሉ። ይህም ሁኔታ ለመኸር

ሰብሎች ስብሰባና ድህረ ስብሰባ እንቅስቃሴ አሉታዊ ተፅዕኖ እንደነበረው የሚታመን ሲሆን ለአጠቃላይ የእርሻ እንቅስቃሴ ለቋሚ ሰብሎችና ለአርብቶ አደሩና ለከፊል አርብቶ አደሩ ለግጦሽ ሳር እና ለመጠጥ ውሃ አቅርቦት አዎንታዊ ተፅዕኖ ነበረው።

እ.ኤ.አ በጀንዋሪ 2008 በአጠቃላይ ከወሩ አጋማሽ ጀምሮ የዘነበው ዝናብ በሀገሪቱ ሽምጥ ሸለቆና አጎራባች ደጋማ ስፍራዎች ላይ የተስፋፋ ገፅታ ነበረው። ይህም ሁኔታ ለመጪው በልግ የማሳ ዝግጅት እንዲሁም ለአርብቶ አደሩና ለከፊል አርብቶ አደሩ ለግጦሽ ሳር እና ለመጠጥ ውሃ አቅርቦት አዎንታዊ ገፅታ እንደነበረው ይታመናል። በአንፃሩ ደግሞ የነበረው ዝናብ በኦክቶበርና በኖቬምበር ወር 2008 በተገኘው እርጥበት ተዘርተው ለነበሩት እንደ ሽምብራ፣ ጓያ፣ አብሽ ወዘተ እና ዘግይተው ተዘርተው ለነበሩት ሰብሎች ስብሰባ እንቅስቃሴ ላይ መጠነኛ አሉታዊ ተፅዕኖ እንደነበረው ይታመናል። በሌላ በኩል አብዛኛውን ትግራይ ምዕራባዊ አጋማሽ፣ የምስራቅ አማራ፣ የቤንሻንጉል ጉሙዝና የደቡብ ምስራቅ ቆላማ አካባቢዎች አልፎ አልፎ ከነበራቸው የደመና ሽፋን በስተቀር በወሩ ውስጥ በበጋው ደረቅ አየር ተፅዕኖ ስር ቆይተዋል። ይህም ሁኔታ ለመኸር ሰብሎች ስብሰባና ድህረ ሰብል ስብሰባ እንቅስቃሴ አመቺ ሁኔታ የነበረው ሲሆን ለአርብቶ አደሩና ከፊል አርብቶ አደሩ ለግጦሽ ሳር እና ለመጠጥ ውሃ አቅርቦት አሉታዊ ተፅዕኖ ነበረው።

ጠቅለል ባለ መልኩ ሲታይ ከላይ ከተጠቀሰው የግብርና ሚቲዎሮሎጂ ትንተና ለመረዳት እንደተቻለው በአጠቃላይ የአዝርዕቱ ሁኔታ በአብዛኛው መኸር አብቃይ በሆኑ አከባቢዎች በጥሩ ሁኔታ ላይ ሲሆን የሚገኘውም ምርት የተሻለ ጥሩ እንደሚሆን መረጃዎች ይጠቁማሉ። እንዲሁም (Leap) software በመጠቀም (WRSI) የዕፅዋት የውሀ ፍላጎት በ100ኛ ሲሰላ እንዲሁም (water deficit) የዕፅዋት የውሀ እጥረት በስንዴ በማሽላ ጤፍ እንዲሁም በበቆሎ መኸር ሰብሎች በተሰራው ትንተና (analysis) ካላይ የተጠቀሱትን ሰብሎች አብቃይ ለሆኑ አካባቢዎች ያለፈው የመኸር ወቅት ጥሩ የእርጥበት ሁኔታ እንደነበር ይጠቁማል። በሌላ በኩል ደግሞ ወቅቱን ያልጠበቁ ዝናብ በኖቬምበር ወር የተከሰተ ቢሆንም የበጋው ወቅት ደረቁና ፀሐያማ የአየር ሁኔታ ለሰብል ስብሰባውና ድህረ ሰብል ስብሰበባው ጥሩ ጎን ነበረው። ካለፈው ዓመት ጋር ሲነፃፀር የሰብል ብክንት እንደሌለ ያሳያል። በጥቁሉ የበጋው ወቅት ለመኸር አብቃይ አካባቢዎች ጥሩ ምርት ለማምረት አመቺ ሁኔታን ፈጥሮ ነበር።

BEGA 2008/9
SUMMARY

Normally Bega is the season characterized by cold, sunny and dry weather condition with sometimes, unseasonal rainfall for northern half of the country, and extends from October to January. On the other hand, it is a second rainy season for southern and southeastern lowlands of the country. This dry and sunny condition favors harvest and post harvest activities in the areas where major agricultural activities are practised during Meher season. It is also a cropping time for southern and southeastern lowlands of agro pastoral areas. Besides it is time to perform water-harvesting activities for pastoral and agro pastoral areas of southern and southeastern and eastern lowlands of the country. This weather situation could favor the outbreak of pest and disease of crops if there are favorable conditions, susceptible host and the pest itself. The dry and windy Bega weather condition is also favorable for the occurrence and spread of wild fire. There is also a possibility for frost hazard, mainly over northeastern, central, eastern and southern highlands of the country during the season.

During October 2008 the observed moisture status might have a positive impact for Meher agricultural activities where crops have not attained maturity, whereas for the southern parts of the country it is the start of the second rainy season it will be beneficial for the general agricultural activities. On the contrary the humid moisture condition over parts of lowland areas of Meher growing areas were crops found at full maturity, it will have negative impacts for harvesting activities. In relation to the Moisture, the vegetation cover during the month of October 2008 was good With regard to maximum temperature Dire Dawa, Metema, Methara, Sheraro Gambella, Gode, Humera, Elidar, Mille, Semera, Assayta and Dubti reported extreme maximum temperature as high as 35.2, 35.2, 36.0, 36.5, 36.5, 37.4, 38.5, 39.0, 39.5, 40.0, 40.0, and 40.5 ^{0} C, respectively. In general the NDVI showed better coverage of vegetation over southern, south eastern, western and northwestern parts of the country as compared with other parts.

During the month of November 2008 most parts of the country obtained excess moisture that had both positive and negative impact on agricultural activities. The observed excess moisture might have a positive impact on Meher crops that were at pre-maturing stages and early stage agricultural activities over southern portions of the country, while the condition caused slight crop damage on harvest and post harvest activities of Meher crops due to the unseasonal heavy fall within the range of (30-142.8) mm over south western, rift valley and adjoining areas of southern, western and southeastern parts of the country. Michew, Dolomena, Ginir, Ejaji, Jijiga, HagerMariam, Yabello, Alemya, and Zway reported 58.8, 62.0, 68.2, 69.6, 73.2, 76.8, 80.8, 100.1, and 142.8 mm respectively, in one rainy days, as a result, crop damage was observed over some areas of the country. According to the report from the center and Ginir reported crop damage, at full maturity stage and livestock, Hosanna reported damage on wheat and teff crops, Zeway reported damage on trees and different crops due to the aforementioned unseasonal rainfall. With regard to extreme maximum temperature Gambela, Dubti, Metema, Gewane, Gode, Semera, Humera and Assayta reported extreme maximum temperature as high as 37.5, 37.5, 37.7, 38.2, 38.3, 39.5, 40.5, and 44.0 ^{o} C respectively. On the other hand, some areas of central, eastern, northeastern and northern highlands of the country recorded extreme minimum temperature below 5^{o} C for 2-5 consecutive and also Wegel Tena, Alemaya, Debre Brhan and Mehal Meda, recorded minimum temperature as low as -1.5, -1.5, 0.5, -2.5 ^{o} C respectively. This situation might have a negative impact for normal growth and development of plants.

During the month of December 2008, the observed moisture status showed dry condition, which favored for Meher harvesting activities. However, this situation might have a negative impact on the availability of pasture and drinking water over southern and southeastern parts of the country. The vegetation condition gradually showed decline in response to the cessation of the seasonal rainfall over most parts of the country. However, there is an increase of vegetation cover as compared with the mean condition over south and southeastern lowlands of the country. With regard to extreme maximum temperature Gambela, Dubti, Gewane, and Gode, reported extreme maximum temperature as high as 39.0, 38.0 and 37.5 ^{0} C respectively. On the other hand, some areas of central, eastern, northeastern and northern highlands recorded extreme minimum temperature below 5^{o} C for 2-5 consecutive days, some stations like Alemaya, Debre Brhan, Koffle and Kulumsa reported minimum temperature as low as -2.0, -1.0, 0.6, 0.5 ^{o} C respectively. This situation might have a negative impact for normal growth and development of plants.

During the month of January 2009 the moisture condition shows Moist over southwestern, central & eastern parts of the country this condition was conducive for Belg rain benefiting areas for land preparation and availability of pasture and drinking water. However, the situation might have slight negative impact on harvest and post-harvest activities. With regard to extreme maximum temperature some stations such as Gambela, Humera, Metema. Mankush, Gode, Pawe, Sirbu Abaya and Sheraro reported maximum temperature of 39.5, 39.0, 38.5, 38.4, 38.0, 37.0, 36.9 and 36.7^{0} C respectively. On the other hand, some areas of central, eastern, northeastern and northern highlands recorded extreme minimum temperature below 5^{o} C for more than 5 consecutive days, some stations like Alemaya, Debre Brhan, Cheffa, Adele. Jijiga, Jimma, Debre Zite reported minimum temperature as low as-1.5, 0.5, 1.4, 2.1, 2.5 and 2.5^{o} C respectively. This situation might have a negative impact for normal growth and development of plants

In general during Bega 2008, the seasonal strong wind and frost situation during the month of December has not imposed significant negative impact on crops because of their full maturity, though affecting negatively some late sown highland crops (Field Report) Pests and diseases also did not deviate from normal condition in many areas. Thus taking into account the minimal impact of untimely rain on harvest and post harvest activities exhibited during this Bega season, it is expected that the weather condition during the Bega season was very favorable for harvest and post harvest activities with much less value of post harvest losses as compared with the previous year. Thus the Bega season was as a whole favorable for very good crop production over Meher growing areas. Computation of WRSI and Moisture deficit for Maize, Wheat, Sorghum and Teff over the Meher growing areas clearly indicate that moisture availability was very good for the Season's crop production.

Figure 1. Moisture status for the month of October 2008

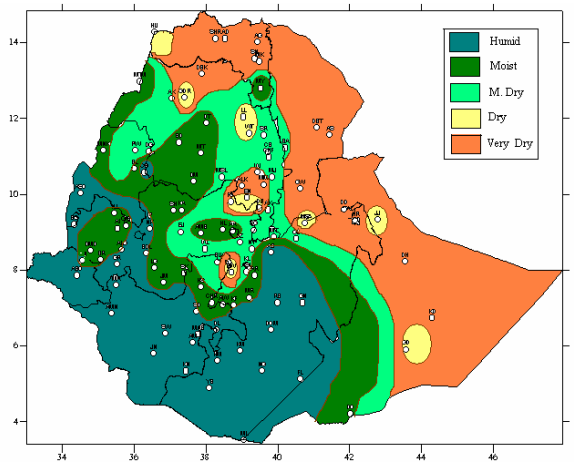


Figure 2. Moisture status for the month of November 2008

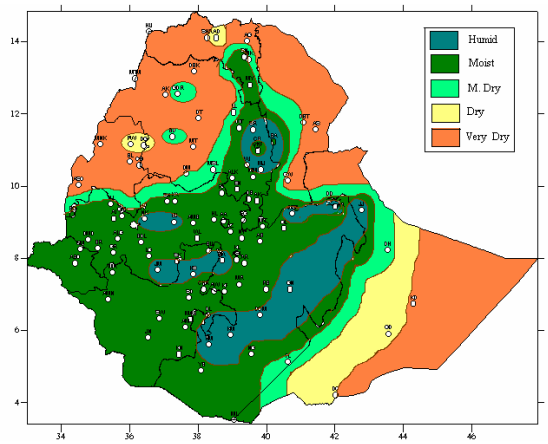


Figure 3. Moisture status for the month of December 2008

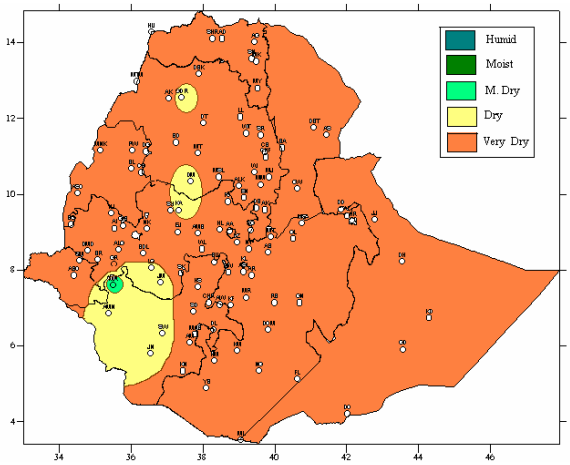
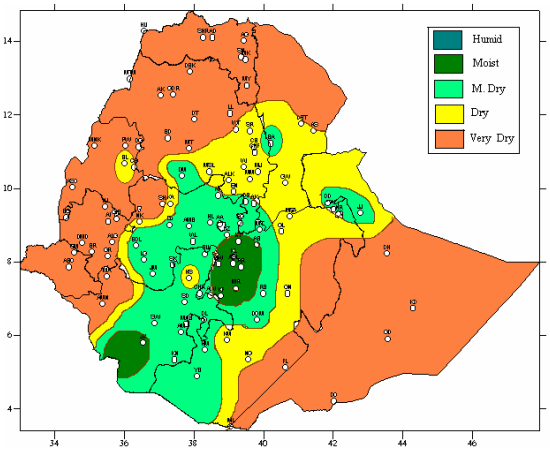
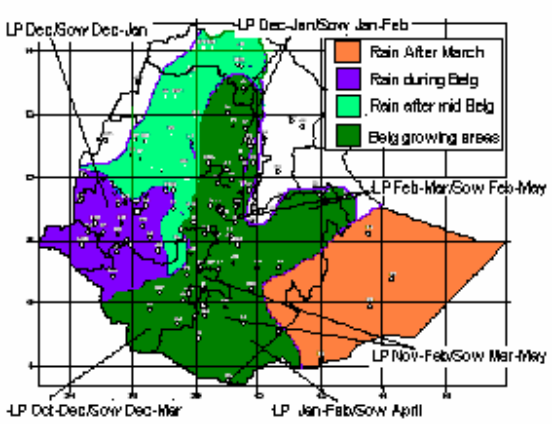


Figure 4. Moisture status for the month of January 2009




LP Dec/Sow Dec-Jan
LP Dec-Jan/Sow Jan-Feb
Rain After March
Rain during Belg
Rain after mid Belg
Belg growing areas
LP Feb-Mar/Sow Feb-May
LP Nov-Feb/Sow Mar-May
LP Oct-Dec/Sow Dec-Mar
LP Jan-Feb/Sow April

haded areas)

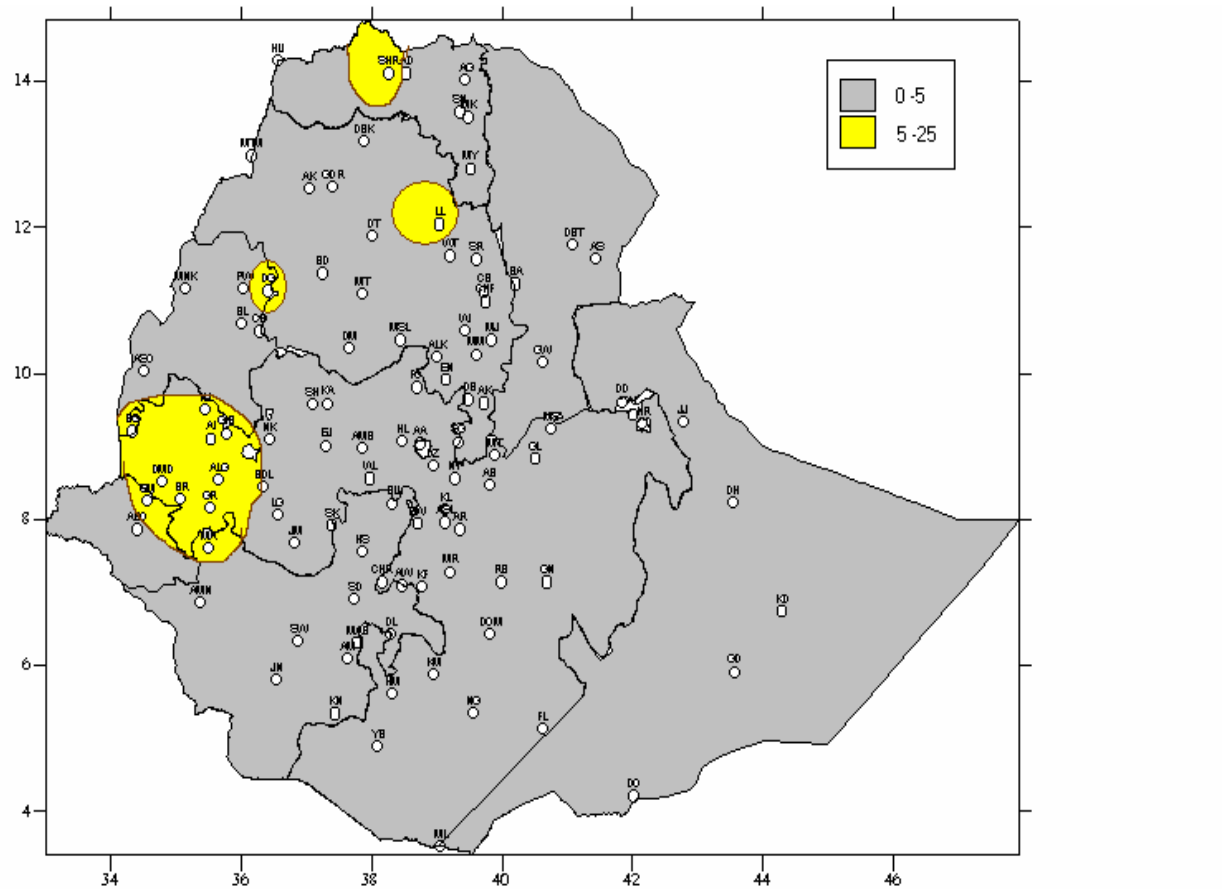


Fig. 6. Rainfall distribution in mm (21-31 January 2009)

1. WEATHER ASSESSMENT

1.1 21-31 January 2009

1.1.1 Rainfall Amount (Fig 6)

Some parts of western Oromiya, pocket areas of northeastern and southwestern Amhara, tip of northern Tigray and pocket areas of western SNNPR and northern Benshangul-Gumuz experienced 5-25 mm rainfall, while the rest parts of the county exhibited little or no rainfall during the dekade.

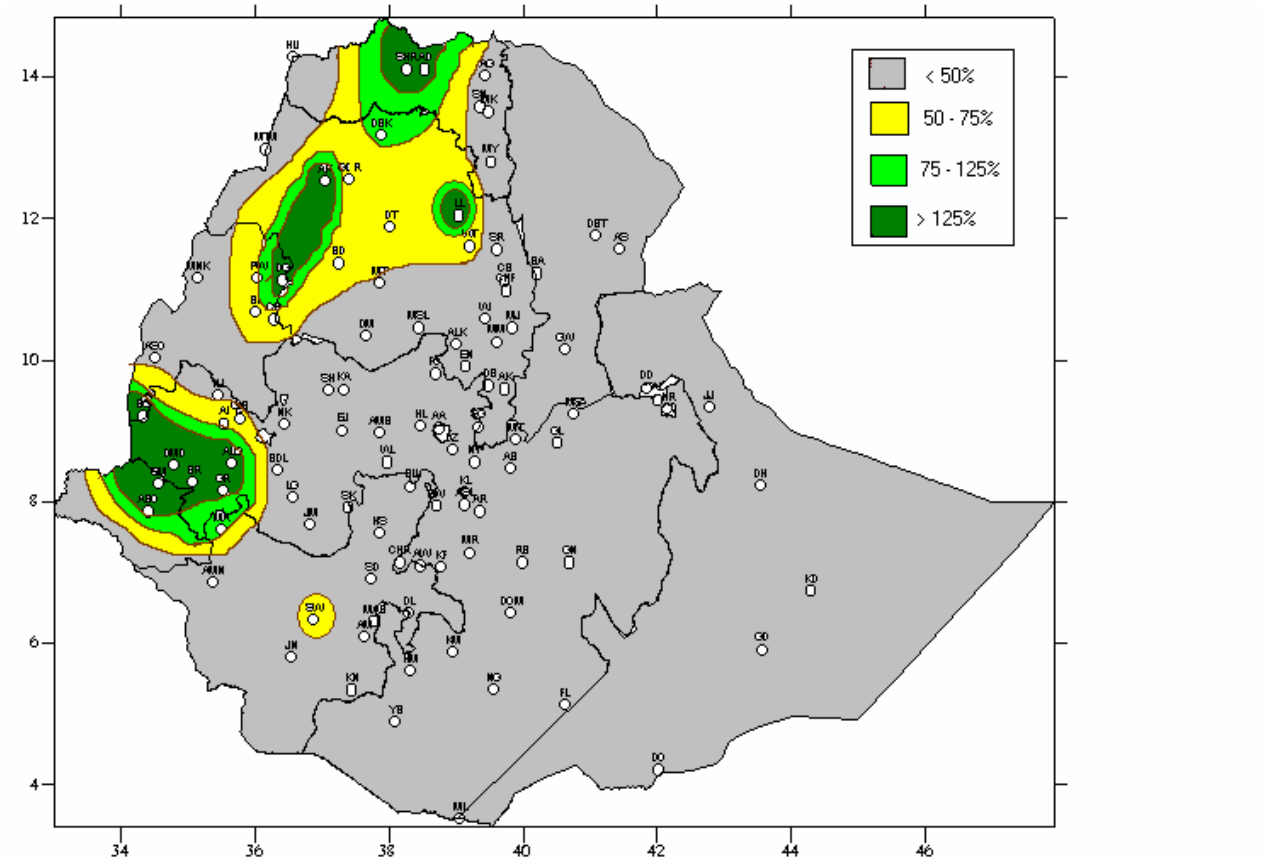


Fig. 7 Percent of normal (21-31 January 2009)

Explanatory notes for the Legend:
< 50-Much below normal
50-75%-Below normal
75-125%- Normal
> 125% - Above normal

1.1.2 Rainfall Anomaly (Fig 7)

Much of Northern, central and southern Tigray, Amhara, Parts of western Oromia, Gambela and tip of eastern Benshangul-Gumuz and central and western SNNPRs received normal to above normal rainfall, while the rest parts of the country exhibited below normal to much below normal rainfall

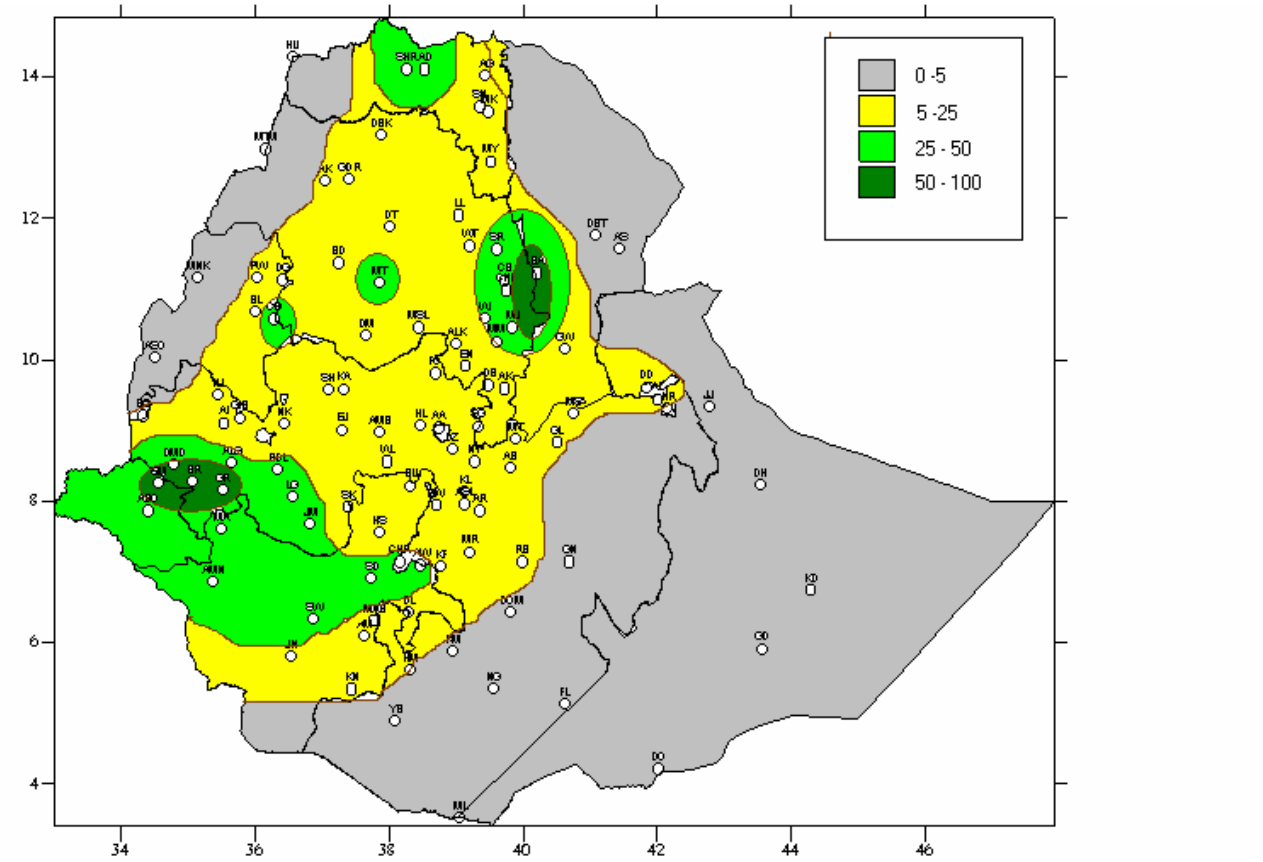


Fig. 8 Rainfall Distribution in mm for the month of January 2009

1.2 January 2009

1.2.1 Rainfall Amount (Fig. 8)

Pocket areas of eastern Amhara and the adjoining areas of Afar and pocket areas of western Oromiya received 50-100 mm rainfall. And while most parts of Gambela, southwestern and western SNNPR, much of northern and central Tigray and western Oromiya and pocket areas of eastern and central Amhara and adjoining areas of Afar experienced 25-50 mm rainfall. Much of Eastern, southeastern, southern and central Tigray, and eastern, southeastern, and central Amhara, Oromiya, Gambela, SNNPRs and Benshangul-Gumuz exhibited 5 –25mm of rainfall while the rest parts of the country experienced little or no rainfall.

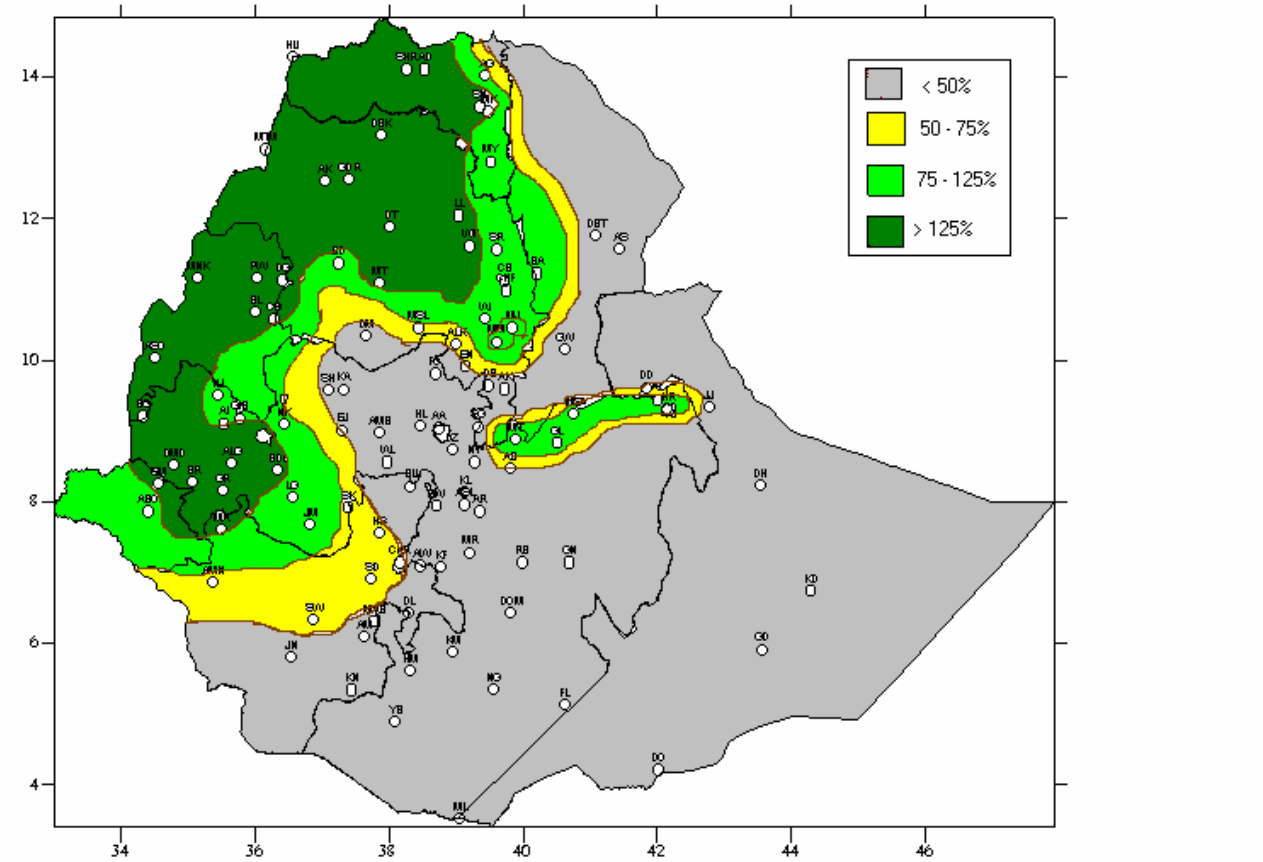


Fig. 9 Percent of Normal Rainfall for the month of January 2009

Explanatory notes for the Legend:

< 50 -Much below normal
50-75%-Below normal
75-125%- Normal
> 125% - Above normal

1.2.2 Rainfall Anomaly (Fig. 9)

Most parts of Tigray, Amhara, Benshangul-Gumuz, Gambela, and some parts of western Oromiya and northeastern and southwestern Afar and pocket areas of eastern and northern SNNPR received normal to above normal rainfall, while the rest parts of the country exhibited below normal to much below normal rainfall

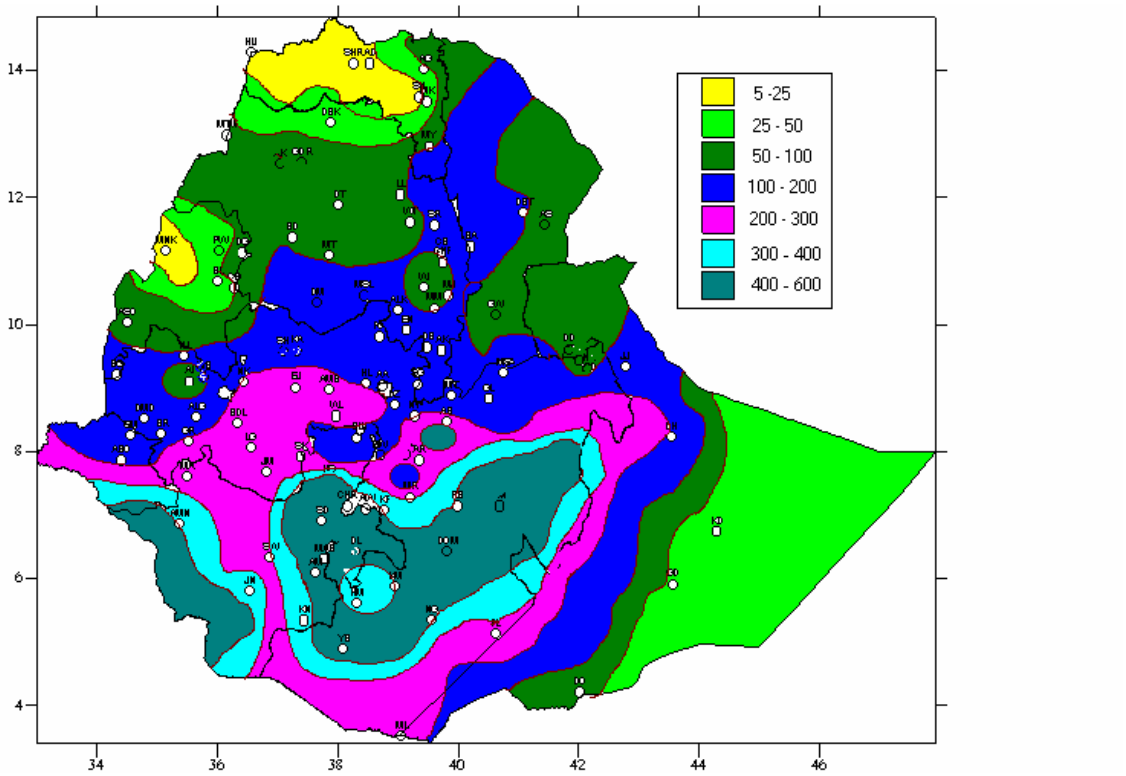


Fig. 10 Rainfall Distribution in mm for BEGA 2008/9

1.3 BEGA 2008/9

1.3.1 Rainfall Amount (Fig. 10)

Some portions of southern, southeastern, western and southwestern Oromiya and SNNPRs exhibited 400-500mm. Pocket areas of eastern, southeastern, western Oromiya, Gambela and SNNPRs received 300-400 mm of rainfall. Much of western, southwestern, southern, northeastern and eastern Oromia, and pocket areas of SNNPRs and pocket areas of southern, southeastern and western Gambella experienced 200-300 mm rainfall. Mucht of Gambela, SNNPR and southern and western portions of Oromia, much of southern Somali received 100-200mm rainfall. Some portions of western Somalia northern and central Oromiya western and northwestern Afar, southern and southeastern Amhara exhibited 100-200 mm of rainfall. Pocket areas of southern, southwestern and northeastern Somali, eastern and northeastern Afra and some portions of eastern Tigray and much of northern northeastern and central Amhara experienced 50-100 mm of rainfall, while much of Benshanugul Gumuze and Tigray and some portions of northern and northwestern Amhara received 25-50 mm of rainfall. The rest parts of the country experienced below 25 mm of rainfall during the season.

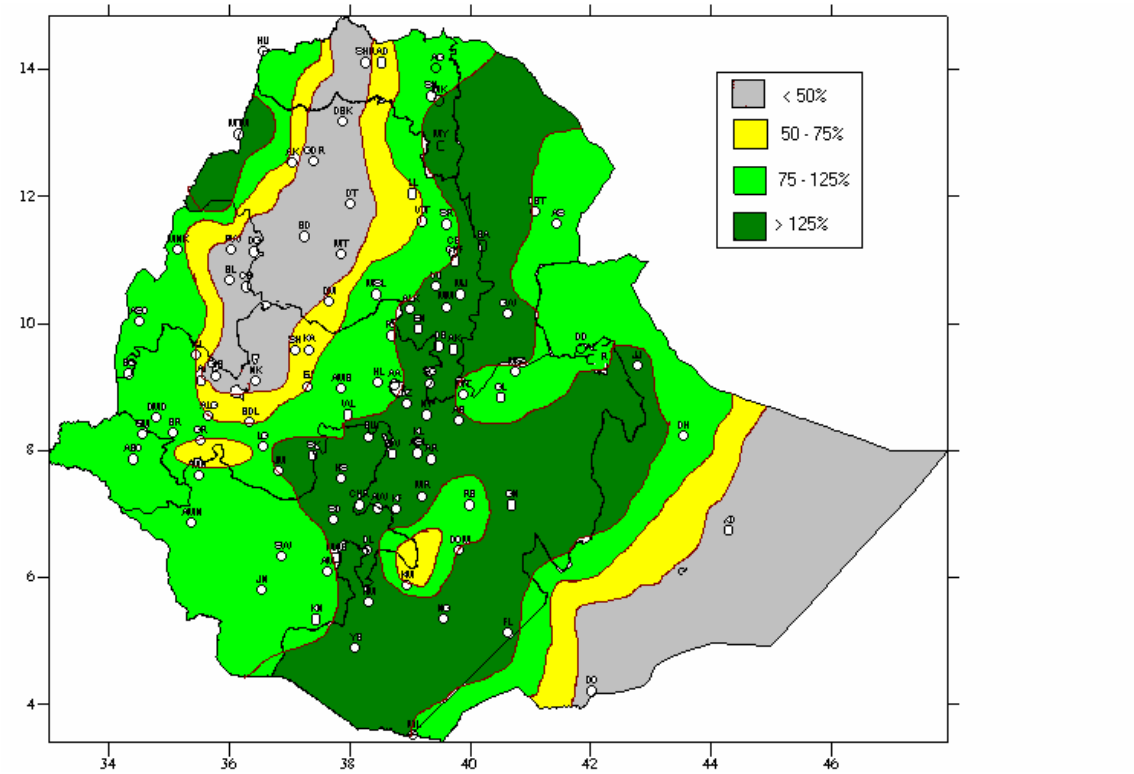


Fig. 11 Percent of Normal Rainfall for Bega 2008/9

Explanatory notes for the Legend:

< 50 -Much below normal
50-75%-Below normal
75-125%- Normal
> 125% - Above normal

1.3.2 Rainfall Anomaly (Fig. 11)

Most of Afar, Oromiya, SNNPRs, Gambela and some portions of western and eastern Tigray, eastern and western Amhara and sorthern, northwestern and southwestern Somalia received normal to above normal rainfall while the rest parts of the country exhibited below normal to much below normal rainfall during the season.

1.4 TEMPERATURE ANOMALY

With regard to air temperature, many station exhibited extreme minimum temperature below 5^0C during the season. To mention some station, which reported below 0^0C were Jimma, Koffele, Wegel Tena, Mehal Meda, Alemya and Debre Brhan Exhibited extreme minimum temperature below 0^0C and lowering up to -1.4, -1.5, -1.8, -1.9, -2.0, and -6.6^{0}C respectively during the season.

2. AGROMETEOROLOGICAL CONDTIONS AND IMPACT ON AGRICULTURE

2.1 VEGETATION CONDITION AND IMPACT ON AGRICULTURE DURIN BEGA 2008/09

Pursuant to the crop phenological report (NMA crop phenological Report) of the Bega season 2008-09 Harvest and post harvest activities were under way in Meher growing area of the country, however, in some areas late planted crops were in flowering and ripeness stage the overall. More over, as MOARD (agricultural report) there was no significant pest outbreak during the season, however, during November there was the infestation of Quele- Quele in some parts of Amhara (Dawa cheffa and Kewat) but preventive measures were taken and totally controlled. However,Frost hazard has been reported especially in some area of Bale & Arsi zone of Oromia, North showa & North Wollo zone of Amhara and Gurage zone of SNNPR on some crops. There were no Fire Hazard reports from any regions. With regard to air temperature, many station exhibited extreme minimum temperature below 5^0c during the season. To mention some station exhibited below 0^0c Mehal meda, Alemaya, Wegeltena and Debre Berhan -2.2, -2.0, -1.5 and -1.0 respectively. Hence this situation could have a negative impact on normal growth and development of plant.

Generally the ovrall crop condition over most parts of meher growin areas was in a good shape therefore expected a good meher crope production in the season.

2.2 EXPECTED WEATHER IMPACTS ON AGRICULTURE DURING THE COMING BELG SEASON

The normally central parts of northern high lands, eastern highlands, part of central, south western and southern Ethiopia are known as Belg growing areas. The contribution of Belg rainfall is ranging from 5-30% over the north, north eastern and eastern highlands where as30-60% over south and south western parts of the country from annual total crop production of the areas. Parts of southern, southern western and south eastern Ethiopia expected to experience probability of slight moisture stress, thus the farmers are advised to utilize rain water harvesting and moisture conservation and adaptation of suitable crops needing less water requirement should be adopted. Eastern, Northeastern, central and parts of southern Ethiopia will experience a probability of normal condition which is conducive for Belg agricultural activities, availabilities of pastor and water over pastoral and agro pastoral areas. Western and Northwestern Ethiopia will experience a probability of normal to above normal availability of moisture which a conducive for general agricultural activities and planting of long cycle crops.

Table1. Climatic and Agro-Climatic elements of different stations for the month of January 2009

No.	Stations	Region	M.total	M.mean	M%	ETo mm/day	Monthly ETo	Moisture
1	Adigrat		0	10.4	0	3.2	98.9	VD
2	Adawa		NA	4.8	NA	NA	NA	NA
3	Humera	TIGRAI	0	0.2	0	NA	NA	NA
4	Mekele		0	3.6	0	4.8	148.8	VD
5	Maichew		0.5	16.1	3	3.1	94.9	VD
6	Senkata		0	10	0	NA	NA	NA
7	Shire		0	3.3	0	2.6	81.5	VD
1	Dubti		31.8	4.1	776	4.6	141.7	D
2	Semera		1.3	0	NA	NA	NA	NA
2	Ayehu	AMHARA	8	NA	NA	NA	NA	NA
3	Aykel		0	3	0	NA	NA	NA
4	Bahirdar		0	2.5	0	3.7	114.7	VD
5	Bati		27.7	50	55	3.1	96.1	MD
7	Combolcha		20.5	27.6	74	3.3	102.3	D
8	Chefa		NA	41.6	NA	3.9	120.9	D
9	D.Birhan		47.2	11.4	414	3.8	118.1	MD
10	D.Markos		10.8	15.7	69	3.93	121.8	MD
11	D.Tabor		0	7.9	0	NA	NA	NA
12	Dangila		0	3.5	0	NA	NA	NA
13	Enwary		15.6	11.3	138	4.4	137	D
14	Gonder		1.8	4.2	43	5.7	177.3	VD
15	M.Meda		24.3	19	128	3.3	102.3	D
16	Majete		28.9	30.6	94	NA	NA	NA
17	Metema		0	0.5	0	4.2	131.4	VD
18	Lalibela		0.8	7.1	11	3.8	117.8	VD
19	Metema		0	0.5	0	4.2	131.4	VD
20	Motta		0	4	0	3.7	115	VD
21	S. Gebeya		25.8	23.2	111	3.4	104.5	MD
22	Sirinka		12.2	47.2	26	3.1	97	D
23	Wereilu		14.5	20.7	70	3.6	112.2	D
2	Alemaya	OROMIYA	23.6	8.1	291	2.8	88	VD
3	Alge		8.5	17.7	48	NA	NA	NA
4	Ambo		27.4	22	125	2.5	76.3	MD
5	Arjo		23.4	14.9	157	3	92.1	MD
6	Bedelle		19	11.5	165	3.6	111.6	D
7	Begi		18	1	1800	NA	NA	NA
8	D.Mena		56.3	24.1	234	4	124.3	MD
9	D.Zeit		23.8	9.8	243	4	123.7	VD
10	Fitche	OROMIYA	16.6	21.3	78	3	94.2	MD
11	Ejaji		NA	8.3	NA	4	124.3	VD
12	Gelemso		30.3	17.8	170	4.1	127.7	D
13	Gimbi		38.2	22.8	168	NA	NA	NA
14	Ginir		4.3	3.9	110	NA	NA	NA

15	Gore		27.3	40.9	67	2.7	82.2	VD
16	H. Mariam		22.8	13.1	174	3.4	104.5	MD
17	Jimma		61.8	34.4	180	3.2	100.1	MD
18	K.Mengist		13.2	19.2	69	3.7	114.1	D
19	Kachisa		4.9	17.1	29	3.5	107.3	D
20	Koffele		79.2	36.2	219	3.4	105.1	M
21	Limugenet		34	25.2	135	3.2	98.3	MD
22	Mieso		24.6	20.3	121	3.9	119.7	D
23	Metehara		84.8	8.4	1010	4.1	127.4	M
24	Moyale		NA	16.7	NA	3.7	115	VD
25	Nazreth		62.6	11.1	564	4.6	141.1	MD
27	Neghele		13.9	8.9	156	5.5	169.9	D
28	Nedjo		3.6	8.1	44	3.4	105.1	VD
29	Nekemte		0	10	0	3.3	100.8	VD
30	Nuraera		32.8	NA	NA	3.3	100.8	VD
31	Robe (Bale)		NA	NA	NA	NA	NA	NA
32	Sekoru		58.5	29.5	198	NA	NA	NA
33	Shambu		13	21.1	62	NA	NA	NA
34	Wolliso		16.7	18	93	NA	NA	NA
35	Ziway	SOMALI	64.9	15.7	413	4.1	126.8	M
1	Gode		0	0.3	0	NA	NA	NA
2	Jijiga		29.9	10.6	282	3.7	115.9	MD
1	A.Minch		45.1	31.2	145	4	124	MD
2	Awassa		32.2	46.7	69	4	123.7	MD
3	Bui		9.3	NA	NA	NA	NA	NA
4	Dilla	SNNPR	NA	NA	NA	NA	NA	NA
5	Hosaina		43.1	28.7	150	2.6	80.6	D
6	Jinka		65.8	51.8	127	2.9	88.7	M
7	Konso		44.4	28.5	156	4.7	146.3	MD
8	M.Abay		0	21.9	NA	NA	NA	NA
9	Sawla		24.2	39.9	61	3.6	110.4	MD
1	Assosa		0	0.5	0	5	154.7	VD
2	Chagni	B/GUMUZ	0	4.7	0	4	124.9	VD
	Bullen		19	11.5	165	3.6	111.6	D
	Pawe		0	0.3	0	4.1	127.7	VD
1	Gambela	Gambela	3.6	1.7	212	3.9	120.6	VD
1	A.A.Obs.		12.5	16.8	74.4	3.3	101.7	D
2	A.A. Bole	A.A	40.4	16.3	248	4.4	135.2	MD
1	Diredawa	D.D	39.3	21.7	181	3.5	108.2	MD
1	Harar	Harai	19.8	8	247.5	3	93	D

Legend			
VD	Very Dry	< 0.1	
D	Dry	0.1 - 0.25	
MD	Moderately Dry		0.25 - 0.5
M	Moist		0.5 - 1
H	Humid		>1

Explanatory Note	
ETo	Reference Evapo-transpiration (mm)

DEFNITION OF TERMS

ABOVE NORMAL RAINFALL: - Rainfall in excess of 125% of the long term mean

BELOW NORMAL RAINFALL: - Rainfall below 75 % of the long term mean.

NORMAL RAINFALL: - Rainfall amount between 75 % and 125 % of the long term mean.

BEGA: - It is characterized with sunny and dry weather situation with occasional falls. It extends from October to January. On the other hand, it is a small rainy season for the southern and southeastern lowlands under normal condition. During the season, morning and night times are colder and daytime is warmer.

BELG: - Small Rainy season that extends from February to May and cover s southern, central, eastern and northeastern parts of the country.

CROP WATER REQUIREMENTS: - The amount of water needed to meet the water loss through evapotranspiration of a disease free crop, growing under non-restricting soil conditions including soil water and fertility.

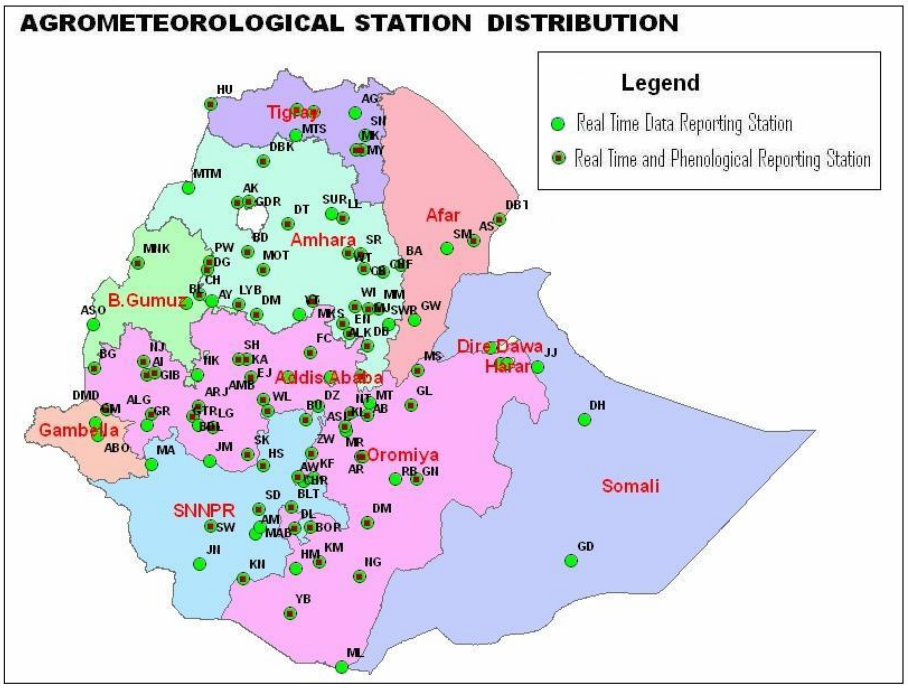
DEKAD: - First or second ten days or the remaining days of a month.

EXTREME TEMPERATURE: - The highest or the lowest temperature among the recorded maximum or minimum temperatures respectively.

ITCZ: - Intertropical convergence zone (narrow zone where trade winds of the two hemispheres meet.

KIREMT: - Main rainy season that extends from June to September for most parts of the country with the exception of the southeastern lowlands of the country.

RAINY DAY: - A day with 1 or more mm of rainfall amount.



Station	CODE	Combolcha	CB	Gonder	GDR	Metema	MTM
A. Robe	AR	Chagni	CH	Gore	GR	Mieso	MS
A.A. Bole	AA	Cheffa	CHF	H/Mariam	HM	Moyale	ML
Abomsa	AB	Chira	CHR	Harar	HR	Motta	MT
Abobo	ABO	D.Berehan	DB	Holleta	HL	M/Selam	MSL
Adigrat	AG	D.Habour	DH	Hossaina	HS	Nazereth	NT
Adwa	AD	D.Markos	DM	Humera	HU	Nedjo	NJ
Aira	AI	D.Zeit	DZ	Jijiga	JJ	Negelle	NG
Alemaya	AL	Debark	DBK	Jimma	JM	Nekemte	NK
Alem Ketema	ALK	D/Dawa	DD	Jinka	JN	Pawe	PW
Alge	ALG	D/Mena	DOM	K.Dehar	KD	Robe	RB
Ambo	AMB	D/Odo	DO	K/Mingist	KM	Sawla	SW
Aman	AMN	D/Tabor	DT	Kachise	KA	Sekoru	SK
Ankober	AK	Dangla	DG	Koffele	KF	Senkata	SN
Arbaminch	AM	Dilla	DL	Konso	KN	Shambu	SH
Asaita	AS	Dm.Dolo	DMD	Kulumsa	KL	Shire	SHR
Asela	ASL	Dubti	DBT	Lalibela	LL	Shola Gebeya	SG
Assosa	ASO	Ejaji	EJ	Limugent	LG	Sirinka	SR
Awassa	AW	Enwary	EN	M.Meda	MM	Sodo	SD
Aykel	AK	Fiche	FC	M/Abaya	MAB	Wegel Tena	WT
B. Dar	BD	Filtu	FL	Maichew	MY	Woliso	WL
Bati	BA	Gambela	GM	Majete	MJ	Woreilu	WI
Bedelle	BDL	Gelemso	GL	Masha	MA	Yabello	YB
Begi	BG	Gewane	GW	Mankush	MNK	Ziway	ZW
BUI	BU	Ginir	GN	Mekele	MK		
Bullen	BL	Gimbi	GIB	Merraro	MR		
Bure	BR	Gode	GD	Metehara	MT		