WEL-COME

TO

AAM DELEGATES

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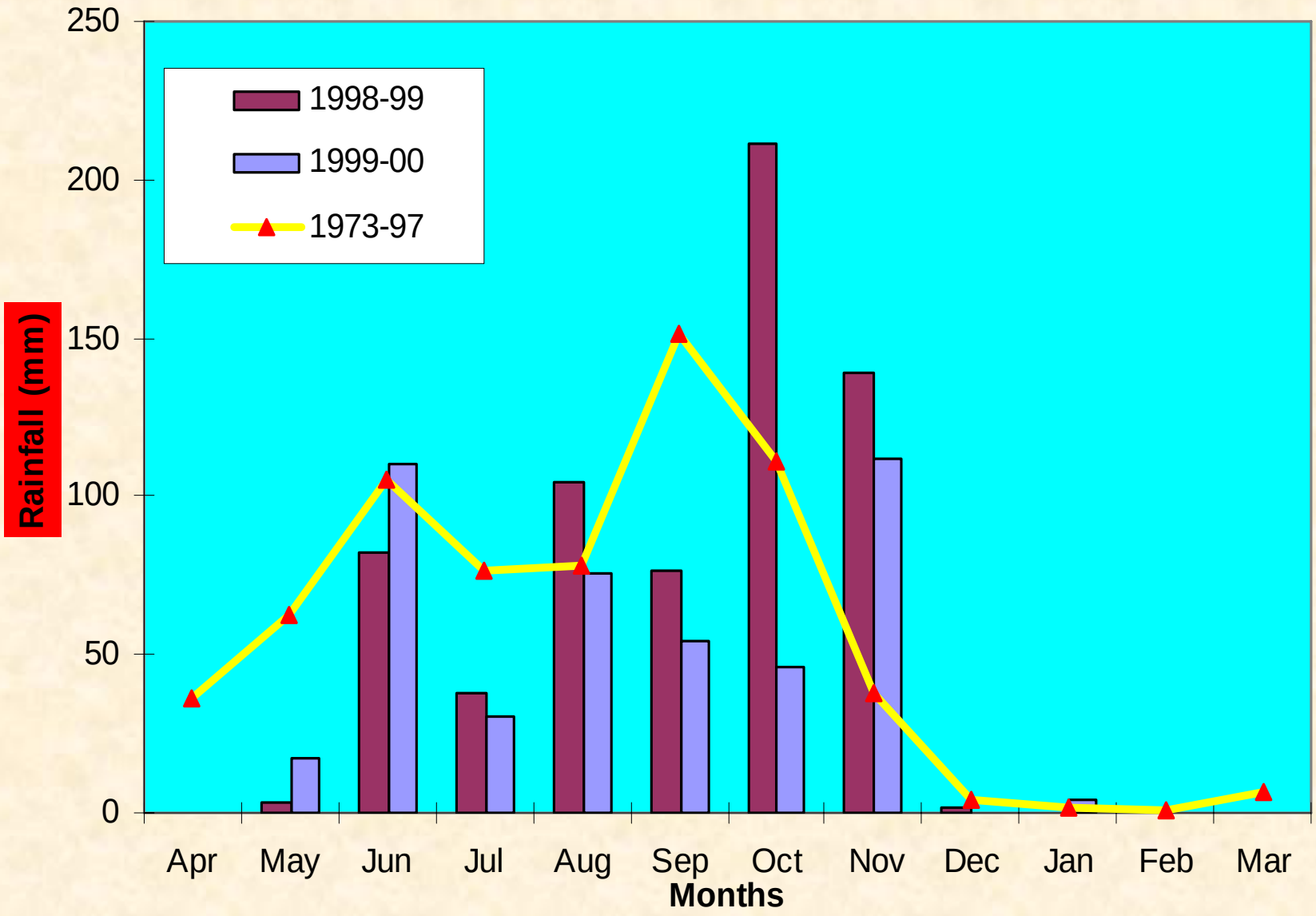
In India, out of the net cultivable area of 143 million ha drylands constitute 65 per cent of the total cultivable area and produce about 45 per cent of India's total food requirements. Out of the total agricultural production, 91 per cent of pulses, 80 per cent of oil seeds and 65 per cent of cotton are realized from dryland agriculture. The above facts emphasise the importance of dryland agriculture in the Indian economy and food security.

The problems of drylands in India are more diverse and intricate than elsewhere. Extreme variability of rainfall between seasons and within season imposes severe restriction on crop production. The unprecedented demands on dryland resources, which are being characteristically fragile, are subjected to accelerated soil erosion, loss of soil fertility and decreased productivity. Improvement in dryland agriculture holds the key to sustainable food and livelihood security for the majority of the population in the country. The new paradigm for dryland agriculture calls for concurrent attention to the principles of ecology, economics, equity and employment. Management of land and rainwater is the most important component of sustainable farming practices. Development of technologies and better appreciation of the existing knowledge of resource management at the farmer's level will be crucial in achieving the anticipated food and fibre demands in future. The greatest challenge for achieving this is to establish a balance between environment and resource base.

Effect of *in situ* moisture conservation practices and organic manures on moisture use, soil moisture content, yield and moisture use efficiency of cotton was studied at Agricultural Research Station, Annigeri during 1999 and 2000. Annigeri is situated in the Northern Dry Zone of Karnataka at 15^{o} 82” N latitude and 75o 30” E longitude with an altitude of 624 m above mean sea level. This Zone is characterized by low, erratic and ill-distributed rainfall. The region is known for frequent droughts or near famine conditions quite oftenly.

The average rainfall [25 years from 1973-1998] is 670.9 mm, which is received in 47.8 rainy days. The rainfall received during the year 1999 was 656.6 mm, distributed over 46 rainy days and was 2.8 per cent lower than the average rainfall. The distribution of rainfall was uniform and the crop did not experience any moisture stress during the entire growing period, which resulted in normal seed cotton yield. The rainfall during the months of September and October was above average, which masked the advantage of *in situ* moisture conservation practices. Whereas, the rainfall received during 2000 [451.0 mm] was 33.4 per cent lower than normal [670.9 mm] and this was reflected in the impact of *in situ* moisture conservation practices. In general the crop did not show any moisture stress during September and October but experienced severe moisture stress during latter part of the growing season which resulted in about 35 per cent lower yield than in 1999.

The maximum temperature was higher during the months of January, March, April, May, July and August compared to normal temperature during 1999. During 2000, January, February, March, April, July, August and September were recorded higher maximum temperature compared to that of average. Like wise, during 1999 all the months were recorded higher minimum temperature except March and December, whereas, during 2000, February, August, September and November recorded higher minimum temperature. The mean monthly relative humidity did not vary considerably with the average value during both the years of experimentation.



Monthly rainfall (mm) at Agricultural Research Station, Annigeri

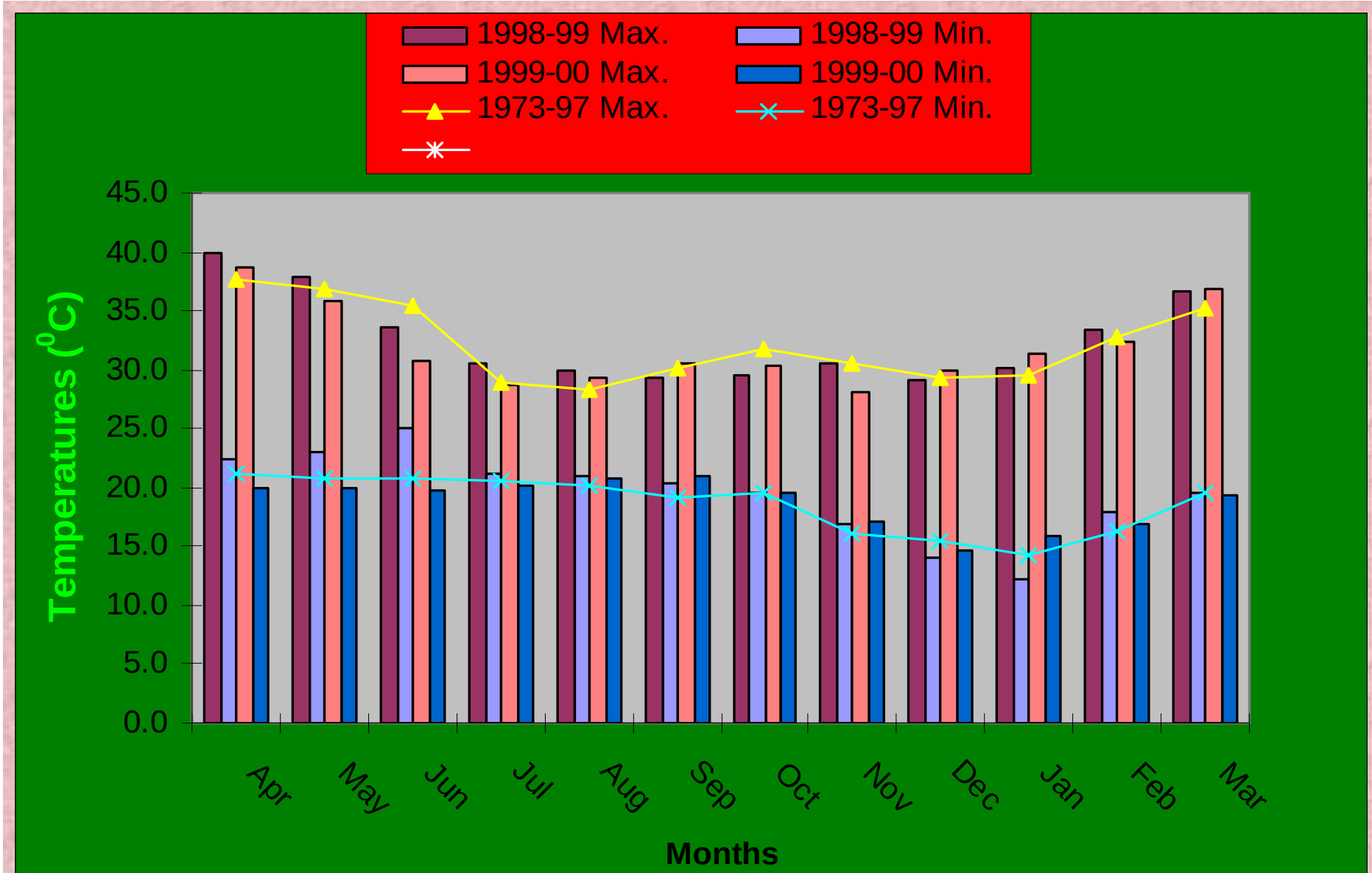
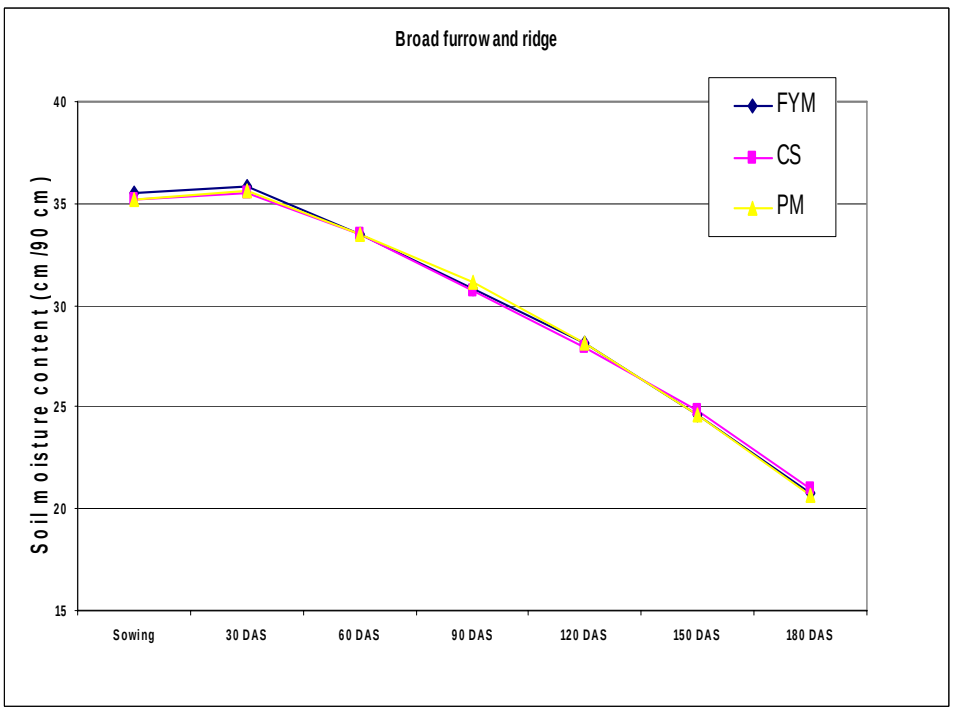
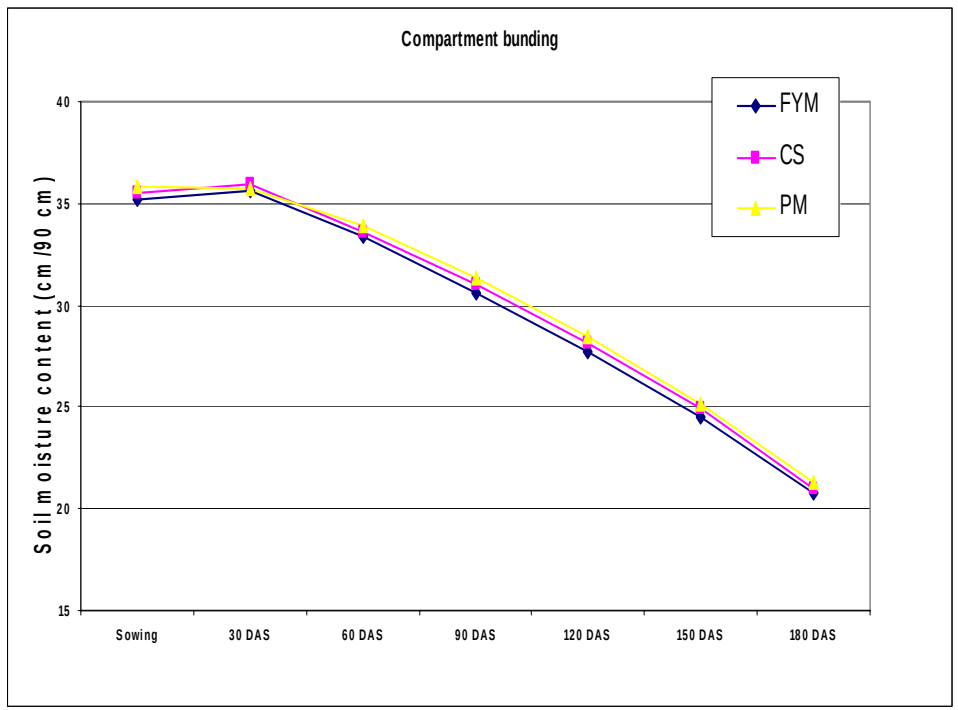
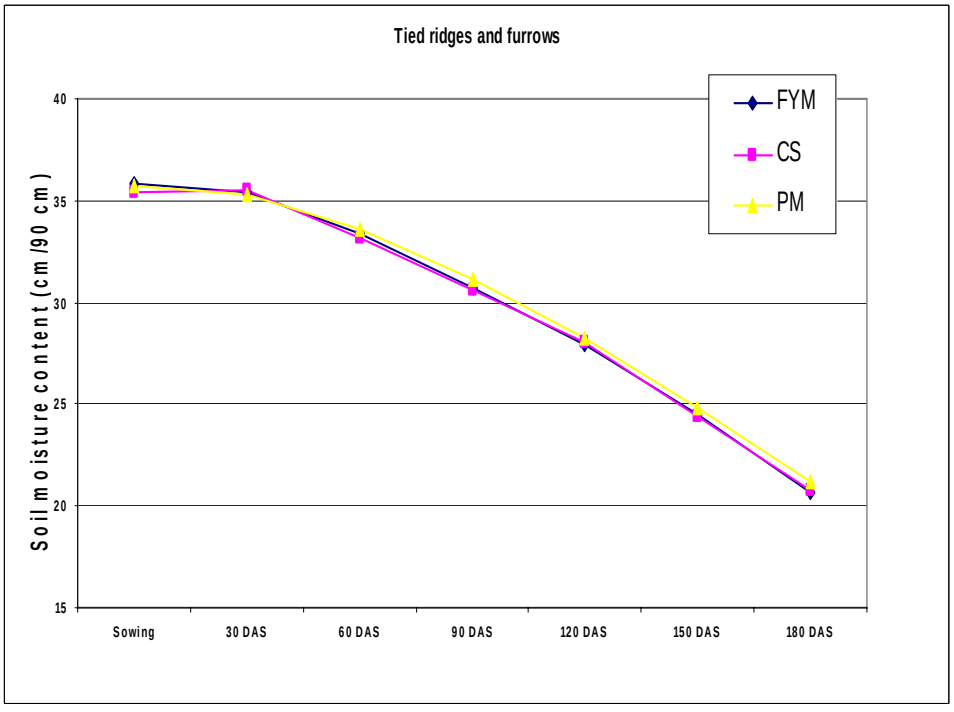
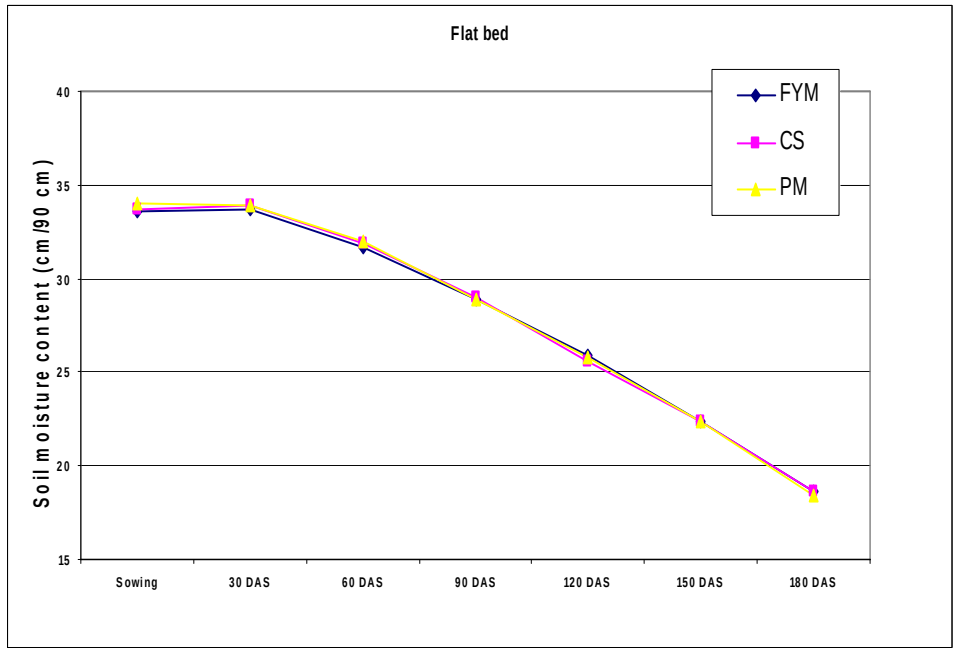


Fig. 2: Monthly mean, maximum and minimum temperatures (^{0}C) at Agricultural Research Station, Annigeri


Broad furrow and ridge
Soil moisture content (cm /90 cm)
40
35
30
25
20
15
FYM
CS
PM
Sowing
30 DAS
60 DAS
90 DAS
120 DAS
150 DAS
180 DAS


Compartment bunding
Soil moisture content (cm /90 cm)
40
35
30
25
20
15
FYM
CS
PM
Sowing
30 DAS
60 DAS
90 DAS
120 DAS
150 DAS
180 DAS


Tied ridges and furrows
Soil moisture content (cm /90 cm)
40
35
30
25
20
15
FYM
CS
PM
Sowing
30 DAS
60 DAS
90 DAS
120 DAS
150 DAS
180 DAS

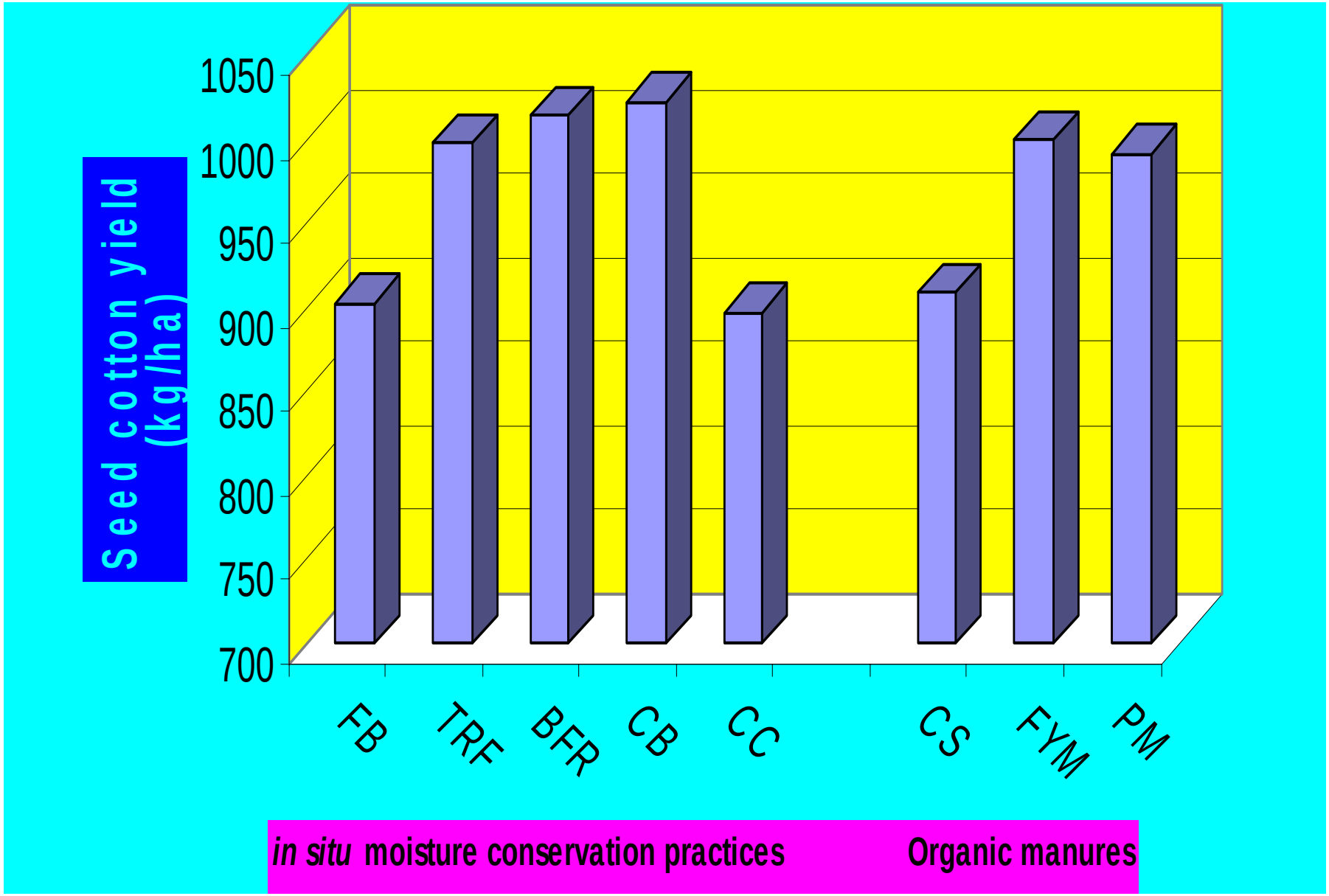

Flat bed
Soil moisture content (cm /90 cm)
40
35
30
25
20
15
FYM
CS
PM
Sowing
30 DAS
60 DAS
90 DAS
120 DAS
150 DAS
180 DAS

Compartment Bunding

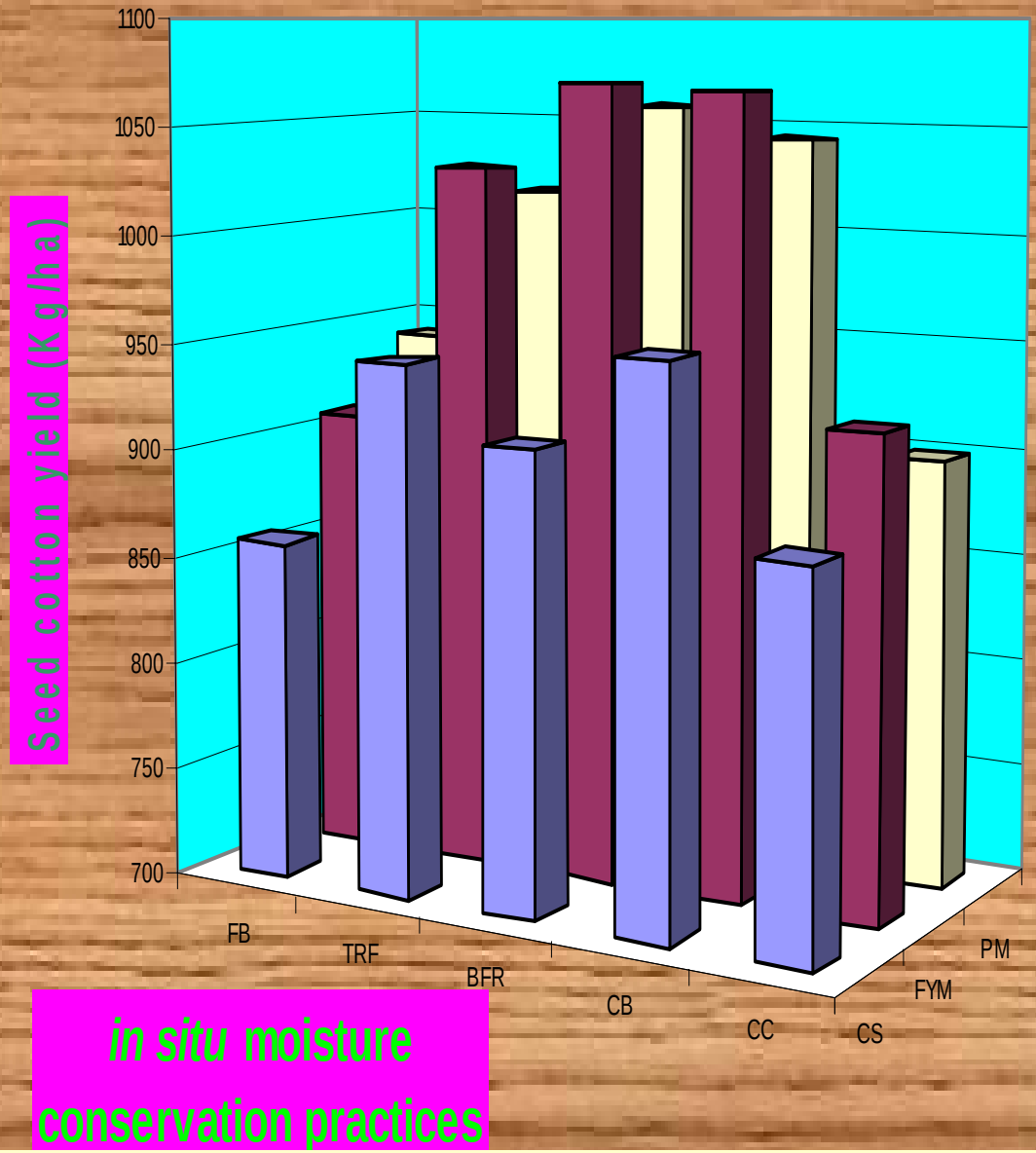
Tied Ridges &Furrows

Broad Furrow &Ridge

Flat Bed



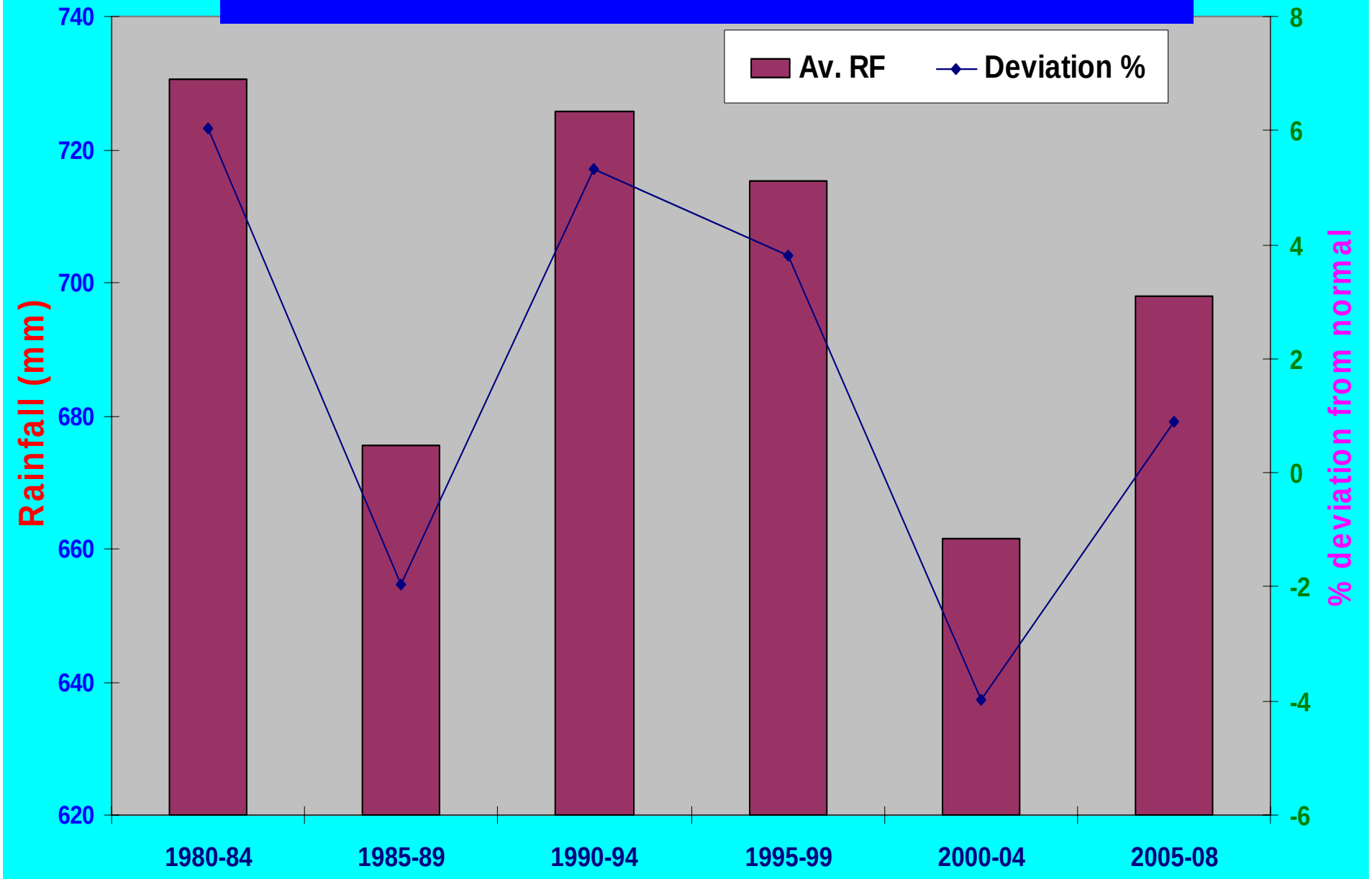
Seed cotton yield (kg/ha) as influenced by *in situ* moisture conservation practices and organic manures (Pooled)



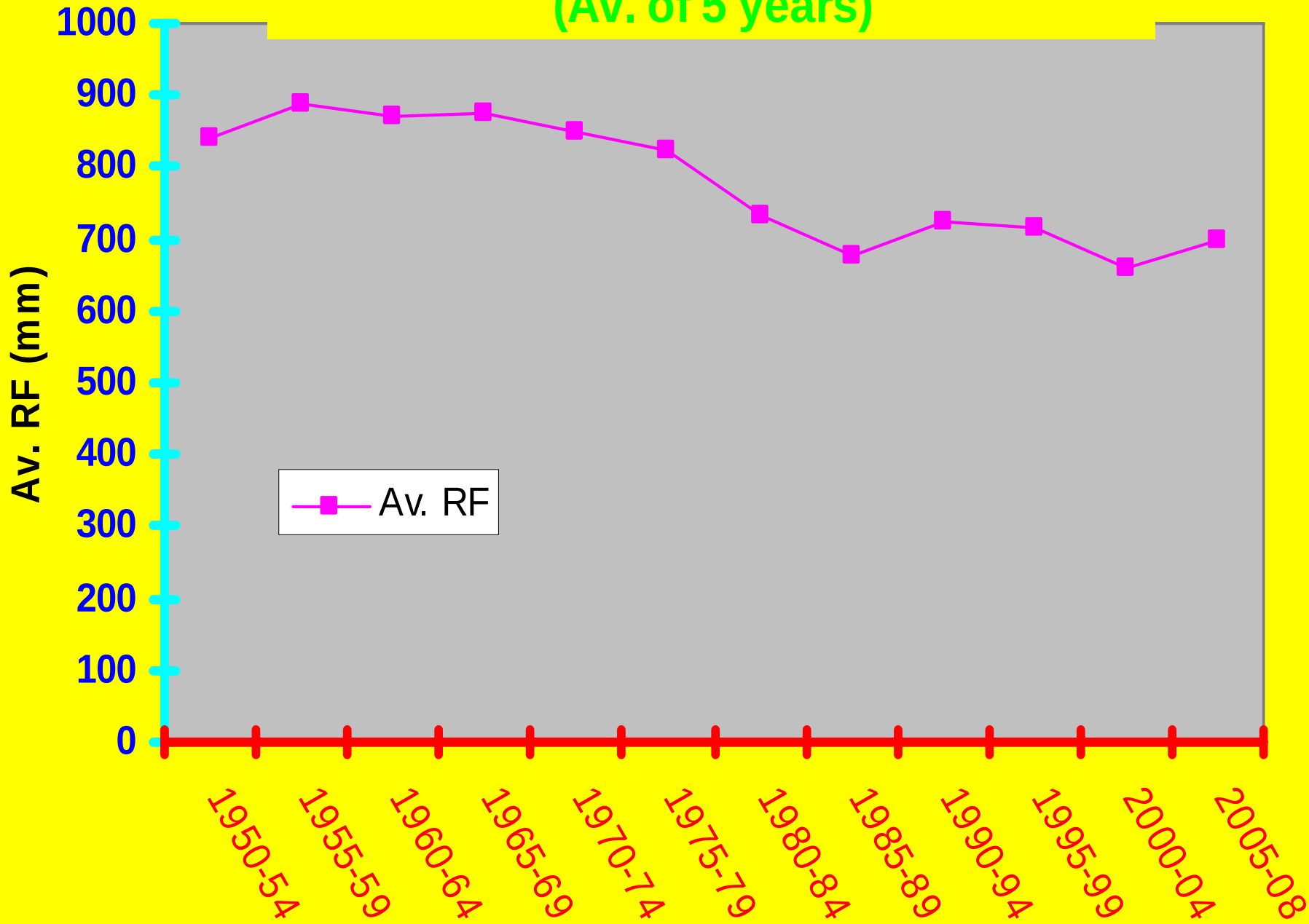
Seed cotton yield as influenced by *in situ* moisture conservation practices and organic manures (Pooled)

The adoptable *in situ* moisture conservation practices like compartment bunding (CB), broad furrow & ridge (BFR) and tied ridges and furrows (TRF) resulted in significantly higher average seed cotton yield of 1022,1014 & 997 kg/ha respectively as compared to flat bed (FB) and contour cultivation (CC) with seed cotton yield of 902 & 897 kg/ha respectively. The moisture use efficiency and net returns were also higher with CB, BFR and TRF. Seed cotton yield was higher with farmyard manure application @ 5 t ha-1 (1000kg/ha) and poultry manure application @ 5 t ha-1 (991 kg/ha) as compared to cotton stalks incorporation @ 5 t ha-1 (909kg/ha). With the above results we can conclude that with *in situ* moisture conservation practices and with application of organic manures, the negative effect of climate change can be minimized to some extent

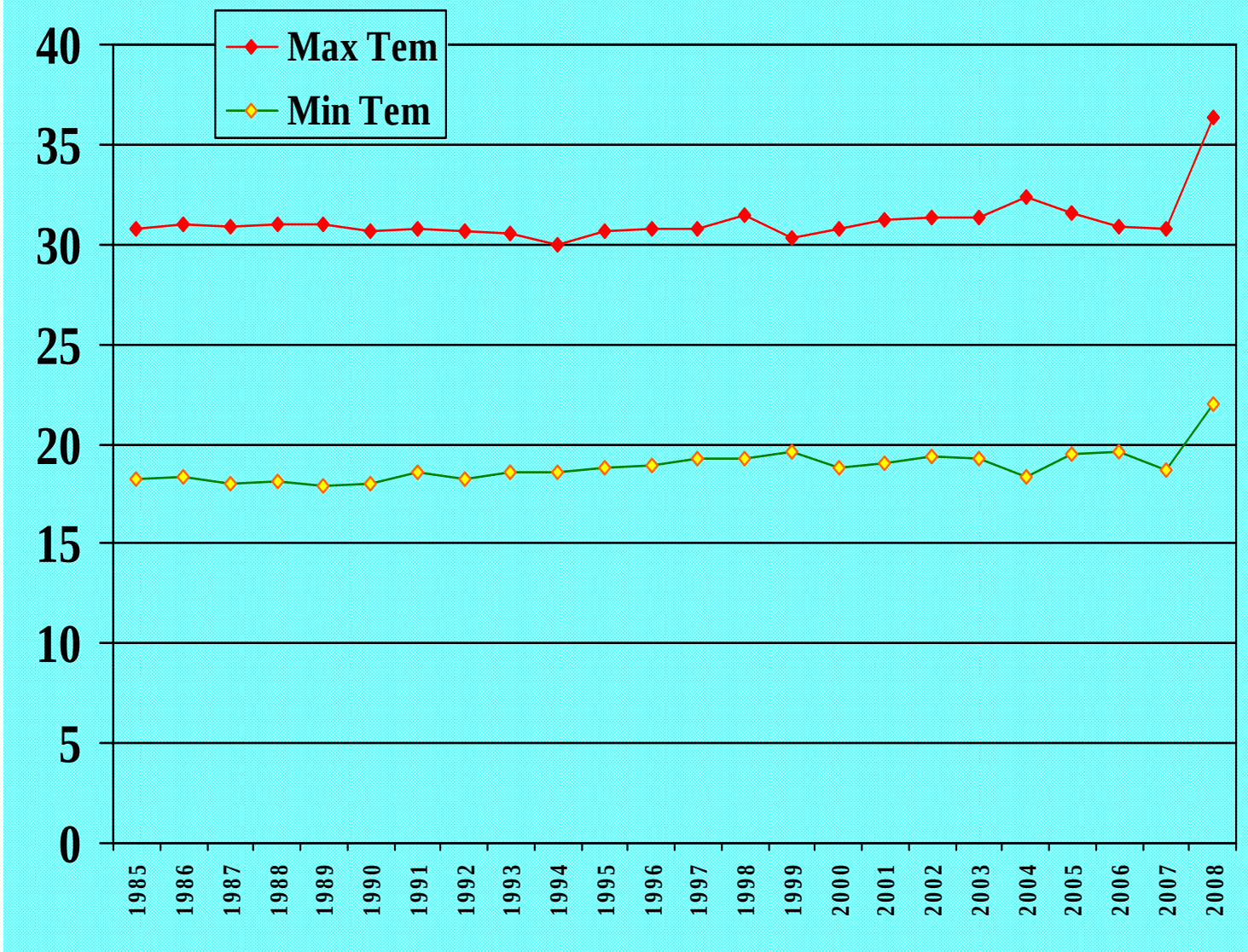
Five years avarage rainfall with devation from the normal of Dharwad



Dharwad Avarage rainfall from 1950-2008
(Av. of 5 years)



Average Temperature of Dharwad



THANK YOU

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