# Abstracts

## 4th World Congress on Conservation Agriculture

4-7 February 2009, New Delhi, India



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4th
World Congress on
CONSERVATION AGRICULTURE
New Delhi, India

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# Effect of Meteorology Parameters on Growth, Yield and Yield Attributing Characters of Custard Apple Selections

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Custard apple is medium sized, tropic and emerging fruit crop. Flowering and fertilization is highly influenced by meteorological parameters like temperature, humidity and rain fall. The experiment was conducted to study the effect of meteorological parameters on different custard apple selections during year 2007-2008. Temperature was recorded similar during both the years, but humidity (21.72%) and total rainfall (35.99%) were decreased in 2nd year (2008) as compared to 1st year (2007). Average days to flowering at 1st reproductive flush appeared in March was earlier in year 2008 than 2007, whereas for 2nd and 3rd flush, the same was remain unchanged. Fruit setting and fruit maturity were also found earlier and observed 16.66 and 64.45 days during 1st year and 21.48 and 70.86 days during 2nd year, respectively. Fruit length was decreased from 7.02 to 6.01 cm, but the girth was increased from 7.36 to 6.72 cm during 1st and 2nd year. Similarly, fruit weight, number of fruit and yield were decreased from 133.32 to 123.20 g, 195.10 to 70.71 fruit number and 22.83 to 8.71 kg/tree, respectively during 1st and 2nd years. In case of qualitative parameters, number of seed and seed weight per fruit were slightly decreased, whereas, skin weight was increased (31.27 to 69.11 g) during 2nd year. Likewise, pulp weight was also observed to decrease (51.58 to 27.47 g), but the pulp seed ratio was increased (2.66 to 3.04) during 2nd year (2008). Percentage of mealy bug and black spot were also recorded higher (29.88% and 27.90%, respectively) during 2nd year than 1st year (2007).

# Sustainability of Conventional and Conservation Agriculture in Small Scale Cotton Based Regions in West and Central Africa: Lessons from Northern Cameroon rica?

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Sustainability of agricultural practises seems to be a suitable concept to evaluate both agronomic and economic performances of conventional and conservation agriculture. In this study, the concept of sustainability is analysed through its three main components: economic sustainability also called economic efficiency, dealing with the ability of the farming system to ensure sufficient and competitive output production to fulfil market and population needs; social sustainability or social equity, dealing with agricultural ability to ensure equitable revenue or return to different stakeholders of the agricultural production chain; ecological sustainability, dealing with intergenerational preservation of the environment referring here to the sum of natural resources used to ensure agricultural production such as soil fertility. Ecological sustainability is commonly the only aspect of sustainability taken into account by agronomists.

Sustainability of conventional agriculture is addressed in this study in small scale cotton based agriculture surveys in Northern Cameroon. Economic efficiency of cotton in conventional agriculture is analysed through a several years data base of a permanent agricultural survey of Sodecoton (Cotton Development Company), while social equity is addressed based on different production cost distribution within cotton production stakeholders. Ecological sustainability is analysed through agronomic variables such as yield variation over time, and mainly soil fertility evolution.

Results of the study revealed that economic efficiency of cotton cultivation in conventional agriculture, after attaining acceptable levels in the years 2000's mainly due to high yields and prices and low inputs cost, is now declining. Fertiliser prices for example vary from 500 US $ per ton in 2005 to more than 1000 US $ per ton coming 2008. Social equity even if strongly reinforced by a perequational price and inputs cost determination system, is limited with a high ecological differentiation between ecological areas varying from 600 mm rainfall in the far north to 1200 mm rainfall in the south of the cotton belt, hence affecting different respective yields. Considering soil fertility, decreasing yields and increasing expenditures on fertilisers and other water harvesting and soil conservation technologies revealed progressive weak response of soil resource to cropping systems management. Conservation agriculture appears to be a more suitable alternative for small scale cotton based agriculture to attain the three main objectives of a sustainable agriculture, since it can ensure economic efficiency of the farming system, a better social equity and a better soil resource management.



# Enhanced Employment and Income Through Diversified Farming Systems in Western Maharashtra

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The farming system in any locality is influenced by the ecological and socio-economic factors. Therefore, the Farming System Research deals with the development of farm technologies through farmers participatory mode. To evaluate and find out the technological option under real farming situations, which will provide the scope for modifications in the existing farming systems, strengthen the better, such type of analysis is required.In Western Maharashtra, three types of farming systems viz., Crop (C), Crop + Livestock (CL) and Crop+Livestock+ Horticulture (CLH) were considered to workout economics of selected farming systems. The purposive sampling was adopted for the study tahsil as a primary unit, village as a secondary unit and the sample farm as an alternative unit. Each farming system had a sample of 30 respondents making a total of 90 respondents.

The average number of family members were 5.17, 5.77 and 4.73, respectively on C, CL and CLH farms. The holding size was 1.76 ha. (Crop farms), 1.59 ha. (Crop + Livestock) and 1.62 ha. (Crop+Livestock+ Horticulture). The proportion of milch animals was 45.54 per cent on crop + livestock farm and 31.31 per cent on crop+livestock+horticulture farm. The average value of capital assets was Rs. 4.50 lakh, 6.10 lakh and 6.08 lakh for crop, crop+livestock and crop+livestock+ horticulture farms, respectively. The average per farm cash expenditure increased from Rs. 20920 for crop farms to Rs. 43,040 for crop+livestock farm and Rs. 44,109 for crop+livestock+ horticulture farm. The labour constituted second major portion of total expenditure which shared 42 per cent for crop farm, 17 per cent for livestock farm and 22 per cent for crop + livestock + horticultural farm. The cropping intensity was 107.85, 137.08 and 125.81 per cent for the crop, crop +livestock and crop+ livestock+ horticulture farming systems, respectively. The total income of the sample farms worked to Rs. 63943, Rs. 123624 and Rs. 130406, respectively for crop, crop+livestock and crop+livestock+horticulture farming systems. For crop, crop+livestock and crop+livestock+horticulture, crop production activity was the major source of income contributing more than 50 per cent of the total income. The income from livestock activity contributed 31 per cent and 22 per cent in the crop +livestock and crop+ livestock+ horticulture farming systems, respectively. The income from horticultural crop occupied the magnitude of 25 per cent of total income in crop+livestock+horticulture farming system.The per hectare net profit generated under crop plus livestock farming system was higher by 48.85 per cent and under crop plus livestock with horticulture by 67.20 per cent than only crops farming system.

The six variables contributing to the income of sample farms (crop area -X1, income from farming system -X2, number of livestock -X3, off farm income -X4, other income -X5 and area under horticultural crops -X6) explained 66 per cent, 75 per cent and 82 per cent variation in income of the sample farmers for crop, crop +livestock and crop+ livestock+ horticulture farming systems, respectively.