Theme 3: Biodiversity – Terrestrial, Aquatic

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AGRO-BIODIVERSITY IN SOLE AND MIXED FIELD BEAN (*LABLAB NIGER* MEDICK) AGROECOSYSTEMS IN SOUTH KARNATAKA

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Field studies were conducted in 1975-78 and 2009-10 to document agro-biodiversity in sole (SFB) and mixed field bean (MFB) cropping systems in and around Bengaluru (12^0 58' N, 770 35' E). In SFB only field bean was cultivated. In MFB, traditional cultivars of finger millet (*Eleusine coracana*), fodder sorghum (*Sorghum bicolor*), castor (*Ricinus communis*), niger (*Guizotica coracana*) and field bean (*Lablab niger* Medick) were cultivated. MFB supported on an average 37 bird species with 148 individuals/km^2 while SFB supported 17 species with 30 individuals /km^2. MFB supported 13 plant species with 85250 individuals/km^2 compared to 10 species with 26000 individuals/ km^2 in SFB. MFB supported 16 butterfly species with 799 individuals/km^2 compared to SFB with 10 species and 557 individuals /km^2. MFB supported 30 beetle species with 76500 individuals/km^2 compared to sole crop which supported 30 species with 60250 individuals/ km^2.

The greater species richness at MFB was due to the greater physical habitat variability. Crop yield loss and bird species richness were negatively correlated ($r = -0.8740$), ($P < 0.5$).At study sites crop yield loss and index of species richness were inversely related. Yield loss and insect species richness were also negatively and significantly correlated ($r = -0.9130$), ($P<0.05$). Supplementing either sole or mixed crop with bird perches (stubs), shrubs and tress along fields borders and restricted use of pesticides facilitated agro-biodiversity and mitigated problems of pests and diseases. MFB (C:B ratio 1:4.1) facilitated sustainable crop yields proving economically, environmentally and ecologically sound than SFB (1:2.3) to the growers.-