The paper uses a synthesis of data collected using household questionnaires and Focus Group Discussion (FGD) to examine the role of Indigenous Knowledge Systems (IKS) in agro-biodiversity and household food security in the smallholder agriculture sector. Period analysis showed that between 1994 and 2002, there was a decline in agro-biodiversity of over 50%. An inverse relationship was observed between arm size and agro-biodiversity. Older farmers (50 years and above), grew more crop types and crop varieties compared to younger farmers (30 years and below). Gender differentials in levels of agro-biodiversity conservation at farm level were observed with female-headed households growing more types and varieties of crops compared to male-headed households.