Rural farmers in the developing countries are highly vulnerable to climate change due to their exposure and poor adaptive capacity. However, farmers’ social networks play an important role in their access to knowledge on climate risk and risk response strategy. This paper examines the pathways of climate knowledge generation and dissemination among actors in the climate change and agriculture sector in Ghana, focusing on the cross-scale processes to tailor knowledge to better fit rural farmers' context. It employs social network analysis of both the organizations in the agriculture and climate change sectors and rural farmers in the Lawra district of Ghana. We explored two networks of configurations: i) relations of collaboration in knowledge production and ii) relations of collaboration in knowledge dissemination. We used three measures of network cohesion; density, core-periphery, and degree centrality to analyze the network structure and influence on knowledge flow and adoption. It finds that the network (both the production and dissemination) consists of socially integrated centralized government and civic organizations that have developed over time. Our analysis reveals that overlaps between these organizations produce more usable knowledge for rural farmers as NGOs collaborates with governmental organizations at mostly community level to produce locally relevant knowledge for rural farmers. However, the challenges associated with cross-organizational collaborations and the sustainability challenge of local NGOs threatens this existing network and knowledge communication to local farmers. Based on these findings, we recommend that effort aimed at tailoring climate knowledge to rural farmers’ context in Ghana be supported by actions targeted at enhancing cross-organizational cooperation and the sustainability of local NGOs.