Smallholder farmers in Kitui West Sub-county, Kitui County, rely heavily on rain-fed agriculture, making them highly vulnerable to climate variability and change. Climate-Smart Agriculture (CSA) provides a sustainable approach to enhance productivity, resilience, and environmental conservation. However, adoption of CSA practices remains uneven, particularly among women farmers, despite their significant role in agricultural production. This study examined the role of women farmer groups in facilitating the adoption of climate-smart agriculture practices under private sector-led extension systems in Kitui West Sub-county. A mixed-methods approach was adopted, involving 196 smallholder farmers selected using Cochran's sampling formula. In addition, purposive sampling was used to select women farmer groups, extension agents, and key stakeholders for interviews and focus group discussions. Data were analysed using chi-square tests and binary logistic regression in SPSS. The findings revealed that 75.1% of respondents belonged to women farmer groups, and group membership was significantly associated with CSA adoption ($\chi^2 = 10.842$, $p = 0.001$). Frequency of meetings, perceived benefits, and discussiontopics were also significantly associated with CSA uptake ($p < 0.05$). A majority (81.5%) of respondents perceived women farmer groups as critical drivers of CSA adoption. The study concludes that women farmer groups are effective platforms for promoting CSA through knowledge sharing, collective learning, and access to extension services. The study recommends strengthening private sector partnerships, enhancing access to training and financial services, and promoting gender-responsive extension systems