Helicopter rotors have traditionally been equipped with passive dampers for aeromechanical stability. These passive systems have fixed characteristics, and add to mechanical complexity and high maintenance cost. Furthermore, they are unable to change to compensate for an unexpected loading trends as typically encountered by a rotary wing vehicle. Semi-active control strategies are dissipative in nature, inherently stable, and require a little energy to operate. Hence, they appear to be particularly promising in addressing a number of the challenges facing active control strategies, in that the devices are low power, fail-safe, and reliable. In this study, author investigates friction based semi-active approach for ground resonance stability augmentation and proposes novel strategies for the adaptive, selective and individual damping control. The effectiveness of these control strategies is validated on a comprehensive multibody system model of an army helicopter. The analytical study is supplemented with a novel design of a semi-active lead lag damper and various aspects of its design in application to commercial rotors are discussed.