In the pursuit of environmentally friendly building blocks in polymer chemistry the utilization of biobased monomers is highly desired. In the present study, the biobased monomer 2,5-furandicarboxylic acid (FDCA) has been extended into epoxy thermosets. The study presents the synthesis of diallyl furan-2,5-dicarboxylate (DAFDC) followed by an epoxidation of the allyls to form diglycidyl furan-2,5-dicarboxylate (DGFDC). DGFDC was then copolymerized in both stoichiometric and off-stoichiometric ratios with epoxidized fatty methyl esters to form a range of thermosets. The cross-linking reaction was either thermally or UV-induced cationic polymerization utilizing onium salt initiators where the reactivity was studied by DSC and real-time Fourier transform infrared analysis. Furthermore, the structure–property relationships of the final thermosets were determined by dynamic mechanical thermal analysis revealing a possibility to tune the properties over a wide range. In addition thermosets were made from diglycidyl Bisphenol-A (DGEBA) with epoxidized fatty methyl esters made for comparative purposes.