Agro-pastoralists whose sources of livelihood depend on rain-fed agriculture are very vulnerable to ecological disturbance due to increasing climate variability. They are unable to adequately feed their animals in times of extreme weather conditions of floods and droughts thereby causing a disruption in their major source of livelihood. This study analyzed the feeding strategies employed by agro- pastoralists in Southern Zambia and important browse species used in extreme weather conditions, in order to improve their utilization for improved livestock production. The major feeding strategies during droughts include browse utilization, dambo grazing, grazing along streams and supplementary feeding. While during floods, upland grazing and browse grazing were the main strategies. However, most of the agro-pastoralists do not practice pasture management and fodder conservation for their animals. Of the 21 tree browse species identified by the agro-pastoralists, 18 species were found to be important during droughts and 8 during floods. Most of the agro-pastoralists neither knew how to plant these browse species nor how to manage them for better and sustainable use in feeding their animals. Therefore, the agro-pastoralists in the study area need to take up management and feed conservation measures for their animals. Deliberate effort should be made to teach the agropastoralists how to plant and manage the important browse species that are suitable in extreme weather conditions. This will enhance productive use of the browse species for improved animal feeding to ensure food security among the pastoralists.