Although synthetic fibres are widely used in clothing production, they can never provide the comfort properties as much as that of the natural fibres. Therefore, natural fibres keep going their importance. On the other hand, nowadays, new generated synthetic fibres having different structure are produced and introduced under different trade names by different firms. They all claimed that these synthetic fibres offer comfort performance as that of the natural fibres. In this study, we aimed to determine some using performance properties of the fabrics knitted from natural fibres such as cotton, wool and regenerated fibres such as bamboo, and also conventional and new generated synthetic fibres such as Coolmax polyester etc. For this aim, we focus on air permeability, water vapour permeability, water absorption, fire retardant property and also pilling behaviour of these fabrics. In the scope of the study, we used the yarns with the same yarn count and twist level to compare the fabric performance properties. Also all yarns were knitted with the same fabric structure and loop density.