Precision farming has been known as an environment friendly farming technology. This study was conducted to develop a variable-rate granule fertilizer applicator as an attempt for introducing the precision farming technologies to rice cultivation in Korea. In this paper, concept design process and manufacturing of prototype variable rate granule applicator was reported. For concept design, some design guide lines were selected. Based on the design guide line and some engineering knowledge, concept design was conducted. The designed prototype granule applicator was mounted at the rear of riding type cultivator for paddy field and had a 10 m wide boom structure with pneumatic conveying and application system as well as 1 GPS receiver, 1 granule hopper, 12 blow heads, 2 metering devices and 1 controller. The fertilizer applicator had 942 kg of weight, 740 m of ground clearance and 1,117 mm of center of gravity from the ground. The applicator was designed to be able to apply granule at 0.34 to 0.428 kg/h of granule at 0.2 to 0.8 m/s of fertilizer working speed.

Keywords
Variable-rate granule applicator; Precision agriculture; Boom; Fertilizer