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EFFECT OF WATERLOGGING, DEPTH OF PLANTING AND SEED CLUSTERING ON SEEDLING EMERGENCE, SHOOT AND ROOT GROWTH OF TWO LEGUME

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Crop failures are often experienced in traditional pulse growing areas due to unexpected floods. A greenhouse experiment was conducted with blackgram green gram using reddish-brown latosolic soils, to study the effect of flooding. Waterlogging treatments were introduced at three different times, (immediately, 12 hours and 24 hours) after planting, and the duration of flooding was 12h. Three planting depths (2,4 and 6cm and three levels of seed clustering (1,2 and 3 seeds per hill) were tested for each waterlogging treatment. Daily measurements were taken for seedling emergence and plant height for three weeks. Plants were uprooted after three weeks and fresh and dry weights of roots and shoots, and the length of roots were measured.

Seedling emergence declined with the increase of time between planting and waterlogging. Waterlogging treatments produced significant effects for all measured growth parameters in both species. However, it was evident that black gram was more tolerant to waterlogging than green gram. Root dry weight of green gram and blackgram decreased by 90% and 80%

(compared with the control), respectively, when seeds were waterlogged for 24 hours after planting. There were no significant differences in shoot and root growth parameters due to depth of planting and seed clustering.