CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

1) The Acrisols soils have available phosphorous deficiency in which it is main limitation for high yield of mungbean.

2) Applying phosphorous incorporating with lime increase available phosphorous in the soil. Thereby, it leads increase of phosphorous and nitrogen concentration of YFEL at V4 stage, total bio-mass, plant height, yield components, seed yield and nodule number of mungbean.

3) Maximum average yields was obtained at available phosphorous of 16 ppm and pH 5.9 with related to the P concentration of 0.38% in YFEL at V4 stage. In this experiment, these values were obtained at the application of 75 kg P_2O_5 and 1300 kg lime ha^{-1}. The highest increase rate of seed yield was also obtained at 75kg $P_2O_5 ha^{-1}$

4) The two varieties namely VC 27-68A and V 41-52 gave higher seed yields than local variety and V 87-13. There was significant variety×phosphorous interaction in seed yield and yield components, plant height and nodule number. As a result, VC 28-68A and V 41-52 always responded better than Lang and V 87-13.

5) Farmers rarely use phosphorous fertilizer for mungbean. In a few cases, they often apply either phosphorous fertilizer or lime for their local mungbean. As a result,

they did not recognize potential to improve mungbean yield through incorporating lime and phosphorous fertilizer.

6) In terms of economic return, applying 75 kg P_2O_5 with 1300 kg lime ha^{-1} gave the highest return to labor, gross margin and high return to capital from an unit area, while using improved varieties alone did not give the high rate of gross margin. Incorporating variety, V 41-52, and phosphorous fertilizer application at 75 kg P_2O_5 ha^{-1} gave the highest gross margin, high rate of return to capital, and the highest return to labor.

7.2 Recommendations

1) To maximize the yield of mungbean in this soil, lime and phosphorous should be applied so that available soil phosphorous is increased to more than 8 ppm, pH increased to 5.8, and exchangeable aluminum decreased to 0.25 meq/100 g.

2) However, to manage mungbean efficiently for economic purpose, it is important to consider farmers' access to cash to buy input such as fertilizer. Soil treatments with lower level of phosphorous fertilizer such as 56kg P_2O_5 ha^{-1} together with using improved varieties i.e. V 41-52 and VC 27-68A can enable poor farmers to improve their mungbean yield. Although these treatments may give only medium yield ha^{-1} and medium net return per hectare, they may be preferred by farmers who cannot afford a lot of purchased inputs. Where cash input or credit are available, high levels of yield may give higher gross margin, as has been found with 75 kg ha^{-1} together with V 41-52.

3) Improvement of mungbean production in Thua Thien-Hue depends on appropriate institutional backstopping. To increase mungbean production to meet national demand will require availability of credits to farmers so that they can buy lime and phosphorous fertilizer. To help farmers to get the best return from their limited resources will require understanding by agronomist and extension workers of the relative prices of inputs and products.