6. Conclusion

The study on the effects of cropping managements with emphasis on planting dates and residue managements for soil surface protection suggests that, soil loss was not significantly different between the field with early and regular planting dates. Mulching with residue of the previous crops of upland rice and corn/lablab were more effective in reducing splash and rill erosion by more than 50 % comparing to no mulch or mulch with residue of corn/red kidney bean. The average top soil loss from mulched plots was 111 t/ha/yr or equivalent to 1 cm/yr while the average soil loss contributed from no-mulched plots was 165 t/ha/yr or 1.46 cm/yr. Soil loss from the field mulched by residue of corn/red kidney bean was not significantly different from the no-mulch plots because of the longer slope length and steeper slope of the fields. The significant difference in soil loss was due to the effectiveness of mulching. Therefore, good ground cover in the beginning of rainy season is very important to control soil erosion.

The average upland rice yield of 2.2 t/ha and 2.0 t/ha were recorded from experimental field and observed field, respectively. The returning of crop residues as mulch from the alternative crops or preceding cover crops from crop rotation would bring about soil structure improvement, maintaining sufficiently high rate of infiltration, and disposal of run-off water without consequential erosion. This will not cause rapid decline in the fertility of the soil and a sustained production of upland rice on the steep land may be achieved.