

**A REVIEW ON LEGUMINOUS COVER CROP AND ITS EFFECT ON SOIL  
NITROGEN AND PHOSPHORUS**

**HUSNI MUBARAK BIN MOHAMAD YAAKOB**

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## ABSTRACT

### A REVIEW ON LEGUMINOUS COVER CROP AND ITS EFFECT ON SOIL NITROGEN AND PHOSPHORUS

This paper reviews the effect of planting leguminous cover crop on the status of soil Nitrogen and Phosphorus. The most common legumes crop planted in the Oil palm and Rubber plantation in Malaysia were *Calapogonium Mucunoides*, *Centrosema Pubescens*, *Pueraria javanica*, *Mimosa pudica*, *Pueraria phaseoloides*, *Arachis pintoii* and *Mucuna bracteata*. In general, planting cover crops will improve soil nitrogen and Phosphorus. *Mucuna pruriens* recorded the highest nitrogen fixation in soil (0.29%). For soil Phosphorus, *Mimosa invisa* recorded highest phosphorus concentration in the soil followed by *Calapogonium mucunoides*, *Mucuna pruriens*, *Crotalaria juncea* and *Pueraria javanica*. Therefore, combination of planting/intercropping *Mucuna Pruriens* and *Calapogonium mucunoides* is recommended to improve soil nitrogen and phosphorus.

**Keywords:** leguminous cover crop, fixation, Nitrogen, Phosphorus, intercrop

## CHAPTER 1

### INTRODUCTION

#### 1.1 Background

A normal oil palm consumed about 160-200kg of nitrogen from the top soil per ha per year (Banabas et al. 2000). In order to providing Nitrogen needed by the plant, establishment of cover crop has been introduced to fulfill the requirement needed by those plants. It is because, fertilizer cost is one of the highest costs involved when establishing a plantation. *Calapogonium Mucunoides*, *Centrosema Pubescene*, *Pueraria javanica*, *Mimosa pudica*, *Pueraria phaseoloides*, *Arachis pintoii* and *Mucuna bracteata* are examples of legume crops planted in rubber and oil palm plantation (Wong et al. 1985).

Establishment of leguminous crops in farming system can fix nutrients especially nitrogen and organic matter into the soil (Anthofer, 1999). This will reduce the cost of fertilizing in early planting period by contributing the nitrogen fertilizer in soil. The legumes can convert the surrounding of nitrogen and fix into soil nitrogen. Legume crop can fix about 70% of their accumulated nitrogen from 25 to 115 kg per hectare after 17 weeks of being planted (Giller & Wilson 1991).