" GUTPELA " COWPEA — A GRAIN LEGUME FOR THE LOWLAND

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INTRODUCTION

Protein deficiency in many areas of Papua New Guinea (Korte, 1974), and the marked absence of pulse crops have been recognized (Oomen and Malcolm, 1958). An increase in the cultivation and consumption of the pulse crops, including cowpeas, will help lessen the present protein malnutrition (Korte, 1974).

Dry cowpea seed (*Vigna unguiculata* (L.) Walp.) contains 22 to 34 per cent protein, (Platt, 1962; Boulter et al., 1973) and is easily cooked in salty water after soaking. Tasting trials amongst students and farm staff have already proved cowpea seed very acceptable in Papua New Guinea. It is widely grown throughout the tropics and subtropics, but at present only grown within Papua New Guinea as a green manure or cover crop (Gee, 1939) and for the production of the green vegetable snake beans. Current usage indicates that cowpea is well adapted to local conditions. A grain legume improvement programme was initiated in 1973 at the University of Papua New Guinea aiming to produce higher yielding varieties of grain legumes well adapted to conditions in Papua New Guinea. Accordingly more than 150 lines of cowpea were introduced and evaluated in the lowlands (Erskine, 1975), resulting in the selection of 'Gutpela' cowpea.

BOTANICAL DESCRIPTION OF GUTPELA COWPEA

Gutpela cowpea originates from a single plant selection made in 1974 from a U.S.D.A. accession number 487 imported from United States Department of Agriculture, Washington D.C. It has brown seeds that average 0.1 g in weight, and has an upright compact growth habit except under conditions of excessive rainfall or high nutrient status when it becomes indeterminate. The axils of the lower lateral branches are purple in colour. Adequate nodulation develops without seed innoculation with *Rhizobium*. Flowers are subtended on long peduncles above the crop canopy and are pink in colour. First flowers appear in the fifth week of growth and are produced continually until harvest. First ripe pods develop two weeks after the onset of flowering and are ready for harvesting when they turn from green to golden brown. Pods average 14 cm long and 0.8 cm wide, and contain an average of 12 seeds per pod. Ninety per cent of the pods are ripe for harvesting between 9 and 12 weeks of planting depending on conditions of growth. Gutpela cowpea shows field tolerance to bean fly (*Melanagromyza phaseoli* Try.) and is moderately tolerant to pod borer (*Aphis caccivora* Koch.) infestation. It has been tested in six replicated trials throughout lowland Papua New Guinea giving an overall average of 1053 kg/ha dry seed (Erskine, 1975).

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AREA OF ADAPTATION AND PLACE IN FARMING SYSTEM

Gutpela cowpea is recommended for areas in the lowlands of Papua New Guinea that have 300 to 500 mm of rain in a three month growing period. Soils of particularly high fertility should be avoided.

Grain cowpea is an alternative pulse crop to peanut and thus occupies a similar position in the farming system. It can be profitably grown in rotations following either tuber crops like sweet potato, yam, cassava and taro or following seed crops such as maize. It can also be used in mixed cropping with cassava, maize, tomatoes and many other crops. In conclusion, it is to be hoped that Gutpela cowpea will not only diversify the existing pulse production in the lowland areas but will also help increase the total production and consumption of vegetable protein in order to lessen protein malnutrition.

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