Intercropping of cassava with different soybean varieties

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Cassava (Manihot esculenta Crantz) is often intercropped with legumes in the tropics. Maturity type and planting time of a legume influence yield of intercropped cassava. The aim of the work was to determine suitable soybean varieties and time of sowing in the cassava intercropping system.

Methods

Three soybean varieties (Fiskeby V, Collee and Bragg) of different maturing types (90, 120 and 150 days) were sown either in sole cropping or intercropped with cassava variety MAus 7 in south east Queensland. Fiskeby V was sown at four different times, 1, 5, 9 and 14 weeks after cassava planting (WACP). The intercrop soybean sown at 14 WACP followed immediately after harvest of the intercrop soybean sown at 1 WACP. Collee and Bragg were sown at 5 WACP. Cassava was planted in 1.8 m rows and, in intercropping, soybean was sown in the interrow space. Cassava was maintained at the same population density in both sole cropping and intercropping, while soybean in intercropping had only two thirds of population density of sole cropping.

Results and Discussion

The seed yield (on a total area basis) of intercropped Fiskeby V when sown at 1 and 5 WACP was reduced only in proportion to the reduced sown area to soybean, the slow early growth of cassava resulting in no competition for light. By contrast yields for the two later sowings were progressively more severely reduced. The sowing date of Fiskeby V had very little effect on tuber yield of intercropped cassava as early harvesting of the soybean allowed sufficient time for the cassava canopy to recover. Seed yields of the two late maturing soybean in intercropping were not very different from sole soybean yields as growth of the tall soybean varieties dominated cassava growth in the intercropping. Cassava canopy development was delayed by the taller soybeans and tuber yield was significantly reduced in intercropping.

Soybean				Сазвауд	
Variety	Sowing Time (WACP) ¹	Seed yield (t ha ⁻¹)		Tuber yield (t ha ⁻¹ DW)	
		s ²	1 ³	\$	I
Fiskeby V	1	2.79	1.96(2.94)4	12.8	11.9
	5	2.20	1.51(2.26)		12,3
	9	1.73	0.58(0.87)		12.7
	1+14	2.79+1.85	1.96+0.30(2.94+0.45) = 2.26 (= 3.39)		10.3
Collee	5	1.59	1.34(2.01)		8.1
Bragg	5	1.86	1.70(2.55)		8.1
LSD 53	251	0.48		3.10	

Table 1. Seed or tuber yields in soybean/cassava intercropping.

1 WACP = Weeks after cassava planting. 2S = Sole cropping.

= Intercropping (on a total area basis).

4() = Soybean yield on a sown area basis.