

# Cashew (*Anacardium occidentale L.*)

French: Anacardier, acajou; Spanish: Anacardo, maranon; Italian: Anacardo; German: Kaschunuss

## Crop data

Perennial.

Harvested parts: fruit (apple) and cashewnut. Processed produce: cashew kernels. Seedling progenies flower in 4 to 5 years but clonal progenies (softwood grafts) flower in third year.

Planting in pits of 60 cm x 60 cm x 60 cm during June-July. Seeds are either sown in situ or seedlings raised in polybags are transplanted at the onset of the monsoon. Vegetatively propagated plants (softwood grafts) are largely used.

Initial close planting at 3, 4, 5 m apart, results in early shading of the soil surface, suppresses weeds, conserves soil and moisture and provides high initial yield per unit area, but requires thinning to the final spacings of 8, 9, 10 m at 5 or 6 years when canopies and root systems are intermingled with those of neighbouring trees.

Often grown on marginal soils and also on waste land mostly unsuitable for other economic crops. Thrives well in sandy sea coast, fairly steep laterite slopes or rolling land with shallow top soils in India; alluvial soils in Sri Lanka; ferruginous soils in East and West Africa, Brazil and Madagascar; volcanic soils in the Philippines, Indonesia and Fiji Islands. The most fertile soils for cashew are virgin forest soils.

Grows best in warm moist, tropical climate with well-defined dry season of 4-5 months during the reproductive phase, followed by a wet season of 4-5 months (1 000-2 000 mm rainfall). Requires equable environment with maximum temperature 34 °C and minimum 20 °C. Optimum sunshine 1 285 hr (9 hrs/day) in flowering/fruit set period. Grown at altitudes from sea-level to 700 m and thrives well between 27 °N and 28 °S latitudes. Usually unirrigated but responds to summer irrigation.

## Nutrient removal

Nutrient removal (30 year old tree) - Macronutrients			
Plant parts	kg/tree		
	N	P2O5	K2O
Leaf, stem & root	1.72	0.41	0.80
Fruit (155 kg)	0.37	0.12	0.28
Nuts (24 kg)	0.76	0.23	0.18
Total	2.85	0.76	1.26

Source: Mohapatra et al., 1973

## Leaf analysis

Leaf analysis data (Kenya) - Macronutrients						
Kind of tree	% of dry matter					
	N	P	K	Mg	Ca	S
Thrifty	1.98	0.21	1.69	0.20	0.09	0.15
Unthrifty	1.52	0.10	0.97	0.17	0.16	0.14

Source: Calton et al., 1961

Leaf analysis data (Kenya) - Micronutrients	
Kind of tree	ppm dry matter

	Fe	Mn	Cu	B
Thrifty	45	95	16	9
Unthrifty	95	260	66	10

Source: Calton et al., 1961

Leaf analysis data (India) - Macronutrients			
Season	% of dry matter		
	N	P	K
Before fruiting	1.41	0.09	0.63
After fruiting*	1.49	0.12	0.79
* fully matured leaves of previous season	1.19	0.06	0.46
* freshly matured leaves of current season	1.79	0.18	1.13

Source: Harishukumar et al., 1982

Application of both lime and phosphate increased the NPK content of young leaves. In Malaysia, liming increased the pH of sandy soils and improved both P and K contents of young leaves.

## Fertilizer recommendations

Fertilizer dose per year (India)			
Years after planting	g/tree		
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
1	170	40	40
2	350	80	80
from 3-4 onwards	500	125	125
15-20	750	250	250

The above annual rates are applied in two dressings, the first at the onset of the pre-monsoon period and the second during the post-monsoon period when the soil moisture condition is at its optimum; if only one application is given, it should be in the post-monsoon period when enough moisture is available. Organic manure must be applied at planting; a rate of 6 t fym per hectare provides for the better growth of young plants.

## Foliar application

Foliar sprays of N as urea combined with an insecticide at the emergence of the flush and again at panicle initiation will ensure better fruit set and control the major seasonal pests. High-volume ground spray (2.0 %) or low-volume aerial spray have both been found to be economic.

## Fertilizer and stage of growth

In India, young plants respond well to N and P.

In Madagascar too, N and P were found to be the most important nutrients during the pre-bearing stage, but at the bearing stage, K (together with N) is also important.

Flowering response of young cashew to N and P fertilizer			
	Percentage flowering		
	At 2 1/2 yrs	At 3 1/2 yrs	At 4 1/2 yrs
With added N and P	35 %	87 %	100 %
Without added N and P	0 %	8 %	31 %

## Preferred nutrient forms

Urea is the most commonly used nitrogenous fertilizer.

Of phosphatic fertilizers for use on acid soils in India, the slow-release and more efficient ground Mussoorie (rock) phosphate is popular.

## Fertilizer placement

On sandy soils, on laterite soils and on sloping land with heavy rainfall, application in a circular trench 25 cm wide and 15 cm deep, at a distance of 1.5 m from the trunk, is recommended. On red loamy soils with low rainfall, the fertilizer should be incorporated into the soil in a band 1.5 m wide, at a distance of 1.5 m (inner edge) to 3 m (outer edge) round each tree.

## Further reading

HARISHKUMAR, P.; NAGABUSHANAM, S.: Leaf nutrient content of cashew as influenced by different methods of fertilizer application. *Indian Cashew J.* 13(3),9-11 (1982)

MAHAPATRA, A.R.; VIJAYAKUMAR; K.; BHAT, N.T.: A study on nutrient removal by the Cashew tree. *Indian Cashew J.* 9(2), 19-20 (1975)

SAWKE, D.P.; GUNJALE, R.T.; LIMAYE, V.P.: Effect of N.P.K fertilization on growth and production of Cashewnut. *Proc. Int. Cashew Symp., Cochin. In: Cashew Res. & Dev. (RAO; KHAN eds.), 95-99, (1979)*

VEERARAGHAVAN, P.G.; CELINE, V.A.; BALAKRISHNAN, S.: Study on the fertilizer requirements of Cashew (*Anacardium occidentale L.*). *Cashew Causerie* 7(2), 6-8 (1985)