



MAURITIUS SUGAR INDUSTRY RESEARCH INSTITUTE

Recommendation Sheet

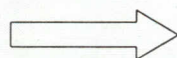
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FERTILIZATION OF SUGAR CANE

1. BLENDED FERTILIZERS

As **blended fertilizers are now manufactured**, they can be made to contain more NPK than 17-8-25 or 17-2-27. With the more concentrated formulations, planters will benefit, as they will have less fertilizers to transport and apply.

The following formulations are now available:



New formulation	Remarks
20-8-28	Replaces 17-8-25
23-0-30	Replaces 17-2-27 & 18-0-24
34-0-16	Replaces 20-0-10
16-22-22	Replaces 13-20-20
28-0-24	New products
19-20-20	

The formulations above are not intended to be exhaustive. As blended fertilizers are straight fertilizers which are mixed together physically, a planter may therefore ask for a blend to be produced as per his/her desiderata.

2. SOIL ANALYSIS

To ensure the successful establishment of the plant cane and maximum benefits for the whole crop cycle, the fertility of each field must be assessed by soil analysis every time it is to be replanted. The results of soil testing will indicate whether the soil is too acid and is deficient in phosphorus (P), potassium (K) and silicon (Si).

On the basis of these results, the rate of Si and liming agent to be applied at planting can be determined (section 3.2) and the most appropriate blended formulation chosen.

3. RECOMMENDATIONS

3.1 Choice, mode of application and rate of blended fertilizers

The blended fertilizers now sold contain urea as the nitrogen source instead of ammonium nitrate. Urea is very susceptible to losses by volatilization as ammonia gas and for this reason if the urea is not buried, its efficacy has been found to be only about 80% that of ammonium sulphate. Consequently, if the blend is to be surface-banded and the field will not be irrigated upon **within the next 24 hours**, it is recommended to use a blended fertilizer that is 20% richer in nitrogen to make allowance for the N which will be lost by volatilization.

The rates of the blended fertilizers to use will depend on the potential yield expected from the field. It is assumed that 1.4 kg nitrogen is needed to produce one tonne millable cane and on this basis, the rates of the blended fertilizers to use are as follows:

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Types of blended fertilizers to be used and rates to be applied

Soil P status →	Soil deficient in P (soil P < 80 ppm)		Soil sufficient in P (soil P > 80 ppm)	
Mode of application of blended fertilizers →	Buried or in furrows at planting <u>OR</u> surface-banded with irrigation immediately after fertilization	Surface-banded with no irrigation afterwards	Buried or in furrows at planting <u>OR</u> surface-banded with irrigation immediately after fertilization	Surface-banded with no irrigation afterwards
Formulation to be preferred →	16-22-22	19-20-20	23-0-30	28-0-24
Expected cane yield (tonne/ha)	Amount of fertilizer to apply (kg / hectare)			
35 – 60	300 – 525		225 – 350	
60 – 95	525 – 825		350 – 600	
95 – 130	825 – 1125		600 – 825	
130 – 165	1125 – 1425		825 – 1000	
Expected cane yield (tonne/arp)	Amount of fertilizer to apply (kg / arpent)			
15 – 25	125 – 225		100 – 150	
25 – 40	225 – 350		150 – 250	
40 – 55	350 – 475		250 – 350	
55 – 70	475 – 600		350 – 425	

3.2 Soil amendments at planting

- Silicon amendment

Where silicon is deficient, cement is applied in the furrows at planting at the following rates:



Soil test value (ppm Si)	Cement at planting	
	(tonne/ha)	(tonne/arp)
< 10	10.5	4.5
10 – 50	10.5 – 7.5	4.5 – 3.0
50 – 95	7.5 – 3.5	3.0 – 1.5
95 – 140	3.5 – 0.0	1.5 – 0.0

- pH correction

Acidity is particularly widespread in soils of the superhumid zone and based on results of soil analysis, it can be corrected using coral sand or lime which is broadcast when the land has been cleared. It is incorporated into the soil by the subsequent passage of implements in the field. With the scarcity of sand and lime, *a third of the recommended amounts*, or *cement* can be applied *directly in the furrows*.

Correction of soil acidity should be envisaged when pH values less than 5.0 are found. The amounts of coral sand, lime or cement required at planting to raise soil pH by one unit are given below:

Material	Broadcast		Applied in furrows	
	tonne/ha	tonne/arp	tonne/ha	tonne/arp
Coral sand	8.5	3.5	2.8	1.2
Lime	4.8	2.0	1.6	0.7
Cement	-	-	2.4	1.0

4. TIME TO APPLY FERTILIZERS

- At planting, fertilizers are applied directly in the furrows, preferably on the day of planting, to minimize loss by surface runoff along the furrows in case of heavy rains.
- Experimentation having shown that yields are not affected when N is applied at planting, planters should apply N, P and K at the same time, as this practice offers advantages such as ease of operation and savings in labour.

** This Recommendation Sheet cancels all preceding ones on sugar cane fertilization.*