C. Effect on 'Cardaba' banana leaf nutrition, PCA-DRC, 2007.

Table 3. Banana leaf nutrient levels (from 3rd youngest expanded leaf).

Macronutrient (% Dry Matter)	N	P	K	Ca	Mg	Na	Cl	S
Treatment								
T1	2.78	0.16	2.31	0.51	0.31	0.05	0.59	0.16
T2	1.94	0.18	3.27	0.34	0.24	0.06	0.48	0.13
T3	1.96	0.17	3.22	0.39	0.24	0.06	0.48	0.13
Normal/ Adequate level[a]	2.90	0.26	3.28	0.63	0.32	0.02	0.44	0.24

Micronutrient (mg-kg^{-1} or ppm) DM	B	Fe	Mn	Cu	Zn
Treatment					
T1	15.7	133.1	854.7	4.8	20.8
T2	15.2	89.9	227.0	4.1	16.8
T3	16.8	63.0	268.6	4.6	15.5
Normal/ Adeq. Level[a]	22.2	125.3	665.2	8.5	28.0

[a] Sampled from 3rd youngest expanded leaf (Magat 2005)

Conclusion

This techno demo trial on 'Cardaba' banana intercrop under bearing 'LAGT' palms not only affirms the effectivity of common table salt (NaCl) in controlling the 'bugtok' disease on this kind of banana as earlier observed by Pava et al. (2003) but also reveals its positive effect on the banana yield by producing heavier fruits/unit time/area.

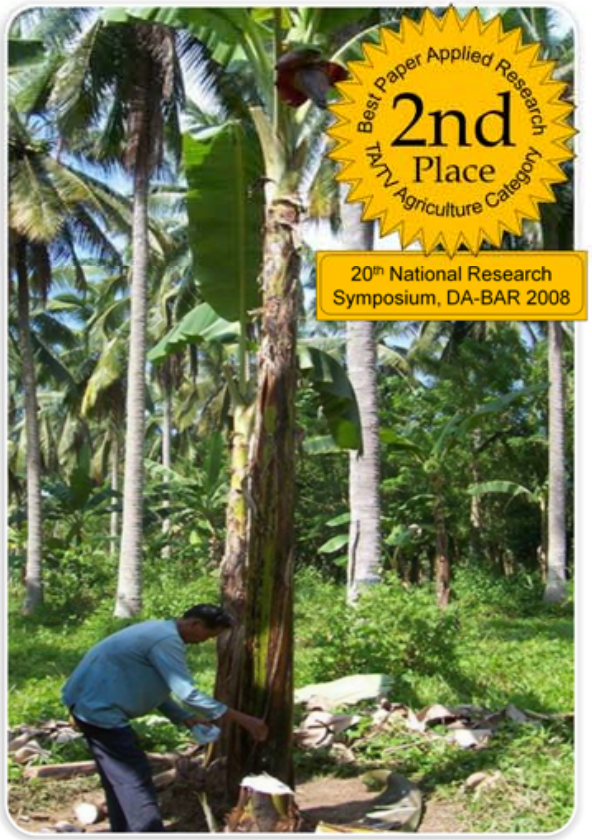
The leaf analysis results reveal that NaCl application enhances potassium (K) absorption from the soil resulting in high leaf K in the plant.The adequate levels of K (3.27%), Cl (0.48%), Na (0.06%) and lower levels of B, Fe, Mn, Cu and Zn observed in NaCl treated- banana contributed to the better yield of 'Cardaba' fruits.

Department of Agriculture
Philippine Coconut Authority
Research &Development and Extension Branch

TECHNOLOGY ADVANCES CANFARMS 2008 / 2

Field Application of Common Salt on Cooking Banana Cultivar 'Cardaba'

grown under Coconut + Banana Agro-ecosystem: A Techno-Demo Trial in Southern Mindanao, Philippines



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Rationale

- Banana, a popular and marketable long-term fruit crop is widely planted in between coconut palms. It is one of the common intercrops of coconut in Mindanao particularly in Davao City due to its food and industrial purposes.
- However, due to diseases, almost all cultivars of banana have been wiped out in most banana growing areas in the country.
- One of the most serious diseases is 'bugtok' which is caused by bacteria, Pseudomonas solanacearum. This disease causes the banana fruit to form lumps which makes the flesh unpalatable even when ripe.
- Using chemicals to control this disease is not recommended because of the expense and danger involved.
- Recent research findings show that applying common table salt (NaCl) on the stump of recently harvested banana adjacent to the one bearing the new inflorescence can control the 'bugtok' disease (Pava et al. 2003). It is believed that salt kills the bacteria that enter through the banana flower.

Objectives

- To determine the effects of Salt application on the yield and leaf nutritional status of 'Cardaba' banana under bearing 'LAGT' coconut palms; and
- To understand the probable agronomic and physiological reasons for the control of banana disease in response to common salt application.

Materials and Methods

- Experimental materials: 'Cardaba' banana planted under bearing Laguna tall 'LAGT' coconuts, with planting systems: coconut – 8 m x 8m square; banana – 4 m x 5 m
- Experimental site: PCA-DRC Experimental Station, Bago Oshiro, Davao City (07o05'N 125o37'E longitude); Highly suitable coconut growing zone with Type 4 rainfall distribution; tropical wet climate (Koppen-Geiger Climate Classification, Kottek et al 2006)
- Soil type: Tugbok clay loam (typic Tropudalfs)
- Experimental Treatments:
  - T1 - Control (no NaCl application)
  - T2 - NaCl application (1 kg/plant) at the stump (one foot from the ground) of recently harvested banana plant near a flowering banana (at least 10 days before and/or 5 days after flower initiation) as shown at right
  - T3 - T2 + additional NaCl application (1 kg) at new banana sucker
- Number of replicates: 5 replicates per treatment
- Experimental plants/plot: 15 banana plants, 8 coconut palms
- Data gathered: yield and fruit quality of banana, leaf nutritional (macro and micronutrients) status of banana at pre-flowering stage, soil pH

Significant Results

A. Effect of Salt on yield of 'Cardaba' banana under 'LAGT' palms (June, 2006 to June ,2007) at PCA-DRC. Davao City.

Treatment	Number of hands[1]/ fruit bunch/ harvest	Weight of fruit[1]/plant /Harvest (kg)	Weight of fruit/plt/ Cropping yr[2] (kg)	Weight of fruit/ha[3]/crop-ping/yr (kg)
T1	5.0	5.9	17.6	8,820.0
T2	6.0	8.7	26.2	13,080.0
T3	5.5	6.5	19.5	9,750.0
Stat. sign.	Ns	Ns	Ns	Ns
C.V.(%)	21.1	25.5	25.5	25.5

[1] Include good and reject (with symptoms 'bugtok disease') banana fruits
[2] Yield estimates based on 3 harvests per cropping year (2nd/3rd cropping)
[3] Yield estimates based on banana planting density = 500 plants/ha

B. Effect on the 'bugtok' disease incidence of 'Cardaba' banana under 'LAGT' palms, PCA-DRC, 2006-07.

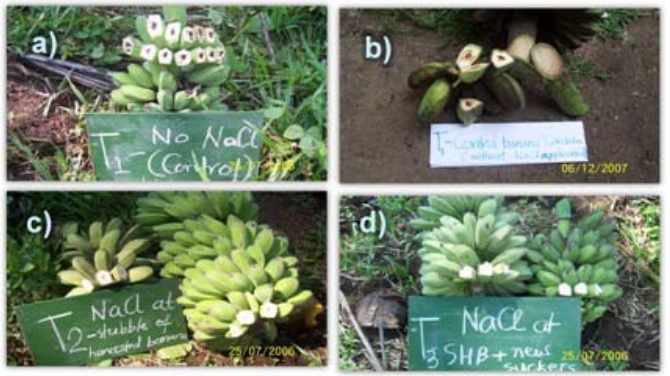

Fig. 1. Unmarketable banana fruits (a & b) with black fruit flesh and black spot on the peduncle (sign of 'bugtok' disease) from T1 as compared to T2 & T3 good and marketable banana fruits (c & d).

- ✓ T1- with 34% reject fruits due to bugtok 'disease'
- ✓ Additional net income (coconut+banana)/ ha/cropping yr = Php **59,646** with NaCl use