

Saging: Ang Pinaka-healthy na Prutas sa Buong Mundo

By Dr. Willie T. Ong



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SELECTION OF BANANA CULTIVARS WITH TOLERANCE TO STRONG WINDS DAMAGE IN THE PHILIPPINES

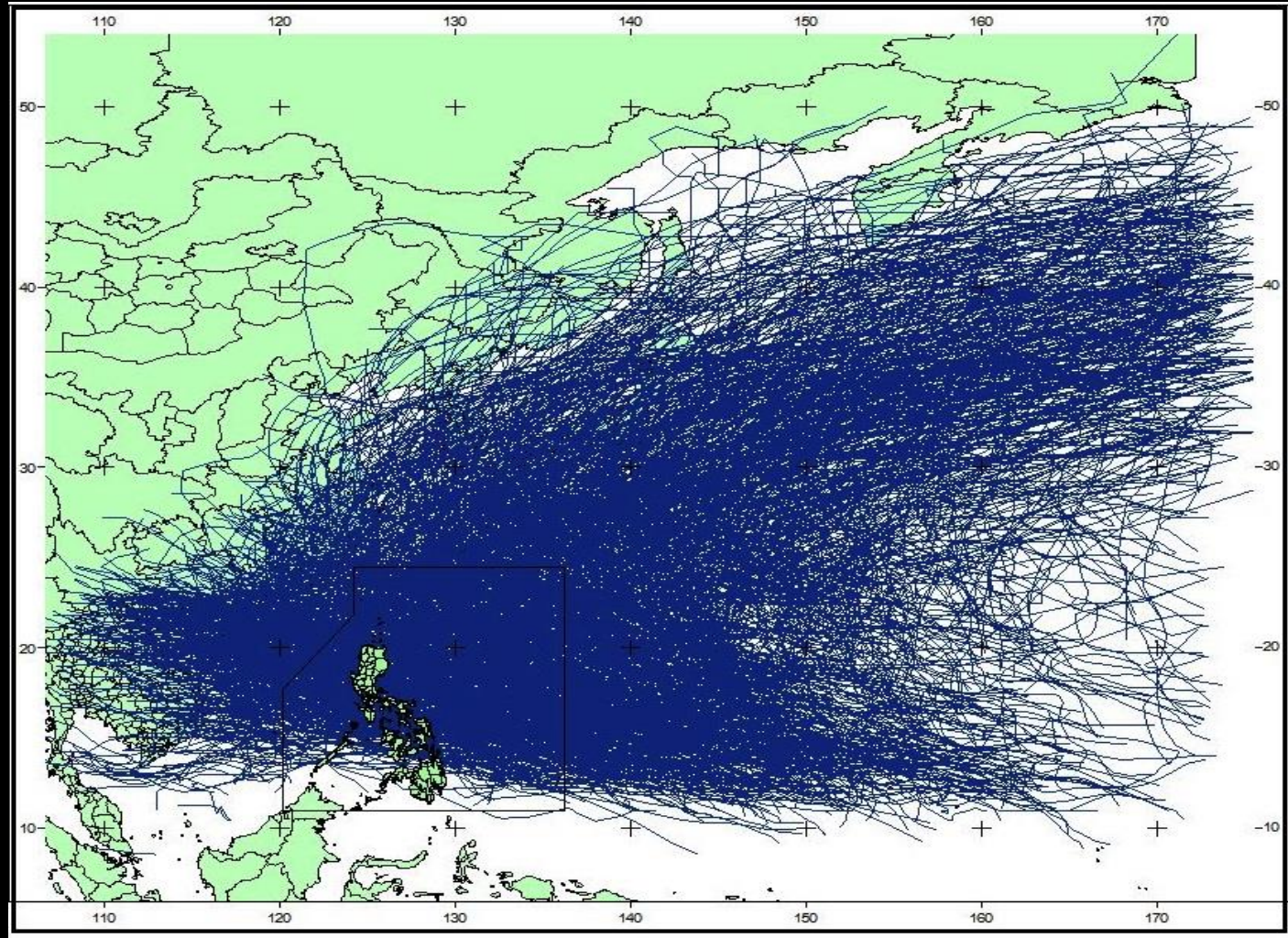
Lavernee S. Gueco, Frelyn V. Corpuz, Vida Grace O.
Sinohin and Agustin B. Molina, Jr.



Crop Science Cluster-
Institute of Plant Breeding
University of the Philippines-Los Baños

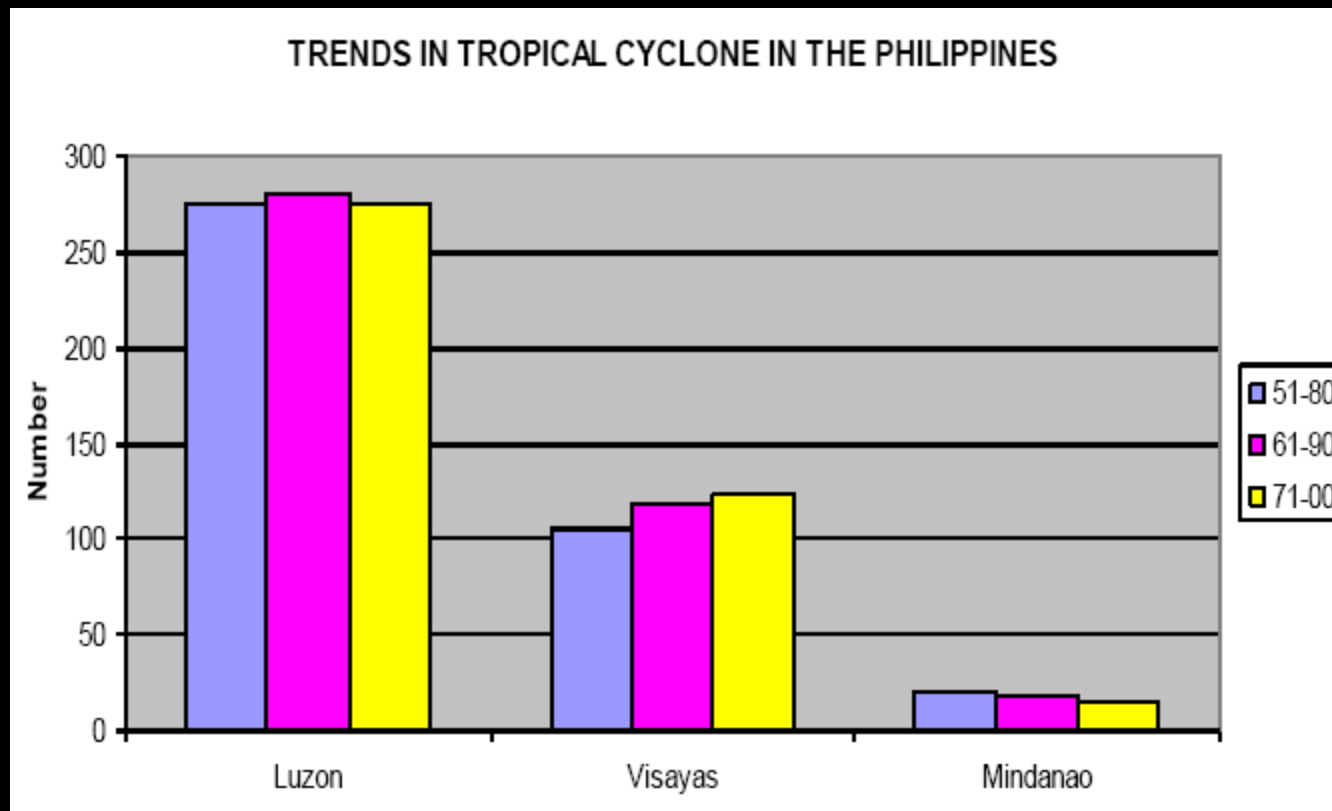


Tracks of Tropical Cyclones in the Western North Pacific (1948-2010)



The Philippines has an average of 20 cyclones every year

Decadal changes in intense tropical cyclone occurrence in the three main islands in the Philippines (1951-2000)

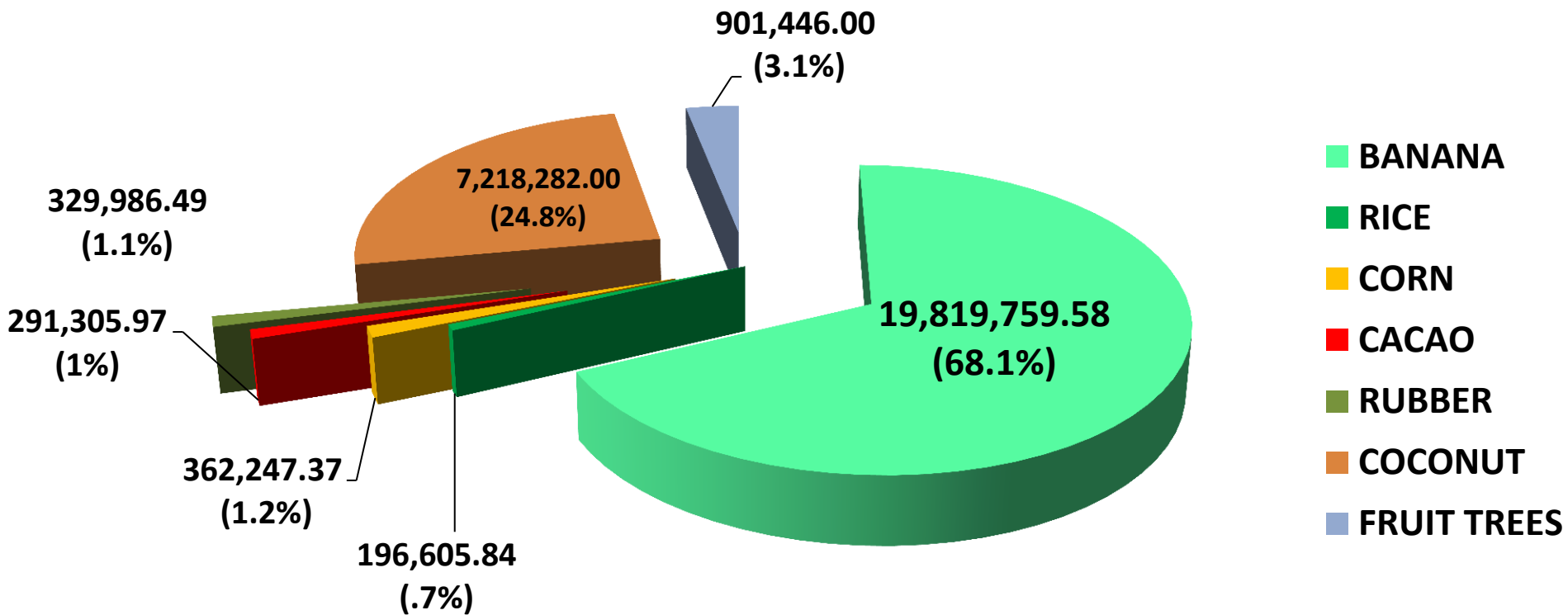


Source: DOST-PAGASA (2011)

Typhoon Pablo

MAJOR CROP LOSS (Value)

=P= 29,119,633,250



Data from Pablo Rehab Plan of DA-RFU XI presented during the Stakeholder's Consultation Meeting on March 11, 2013



Methodology

- Batch 1 (May 8, 2011 – Typhoon Bebeng)
 - ✓ 9 Local and 9 introduced cultivars
 - ✓ Introduced cultivars – International Musa Testing Programme (IMTP) and Kluai Namwa
 - ✓ Date planted: July 5, 2010
- Batch 2 (July 16, 2014 – Typhoon Glenda)
 - ✓ 4 Local and 9 introduced cultivars
 - ✓ Introduced cultivars – Cavendish, Kluai Namwa, and Giant Cavendish Tissue Cultured Variants (GCTCVs)
 - ✓ Date planted: June 10, 2013
- Selection of promising 'Saba' strains with short stature and early maturing

Introduced FHIA Varieties



Fhia 17



Fhia 23



Fhia 25

Comparison of GCTCV219 vs. Grand Naine



GCTCV219

Grand Naine

Batch 1: Before Typhoon Bebeng

(Sustained wind of 50 km/hr and maximum gusty winds of 67 km/hr)



Batch 1: Before Typhoon Bebeng



Leaf damage



Uprooted

Batch 1: Before Typhoon Bebeng



**Pseudostem breakage
(Top and middle)**



**Pseudostem breakage
(Base)**

Batch 1: Before Typhoon Bebeng

Variety	% Typhoon damage*	Pseudostem Ht*	Pseudostem girth*	Days to shooting*	Remarks
Local					
Bungulan	27.78cd	2.60ef	46.78fg	219.61d	6 harvested, with bunches, vegetative
Bungulan Davao	91.67a	2.65de	45.54fg	247.15c	2 harvested, with bunches, vegetative
Cardaba	7.14de	3.57a	74.22ab		Vegetative
Cuarenta Dias	0.00e	2.55efg	43.01g	234.51cd	21 harvested, with bunches,
Dippig	28.57cd	3.67a	77.58a		Vegetative
Lakatan Cavite	73.63ab	3.05b	47.20fg		Vegetative, with bunches
Lakatan Davao	89.29ab	3.00bc	46.43fg		Vegetative
Lakatan Mindoro	85.71ab	3.10b	49.47f		Vegetative, with bunches
Latundan	13.33de	3.00bc	55.40e	283.56b	With bunches,
Introduced					
Kluai namwa	0.00e	2.36fg	68.59c	292.30b	With bunches
FHIA01	7.69de	2.31g	48.40fg	247.36c	With bunches
FHIA17	0.00e	2.56efg	57.11e		Vegetative
FHIA18	3.57de	2.88bcd	62.55d	257.98c	With bunches
FHIA21	78.57ab	3.00bc	48.96f		Vegetative
FHIA23	0.00e	2.75cde	67.40c	348.56a	Vegetative
FHIA25	0.00e	2.58ef	72.08bc		Vegetative
GCTCV106	15.00de	2.34fg	46.45fg	216.20d	5 harvested, with bunches
GCTCV119	60.32bc	2.76cde	56.60e		1 harvested, with bunches



Cuarenta Dias

Dwarf Kluai Namwa



Batch 2: Experimental Set-up



Agronomic performance of
Fusarium wilt – resistant cavendish somaclones
and selected local cultivars

Date Planted : June 10, 2013
No. of cavendish somaclones: 8
No. of local cultivars: 4

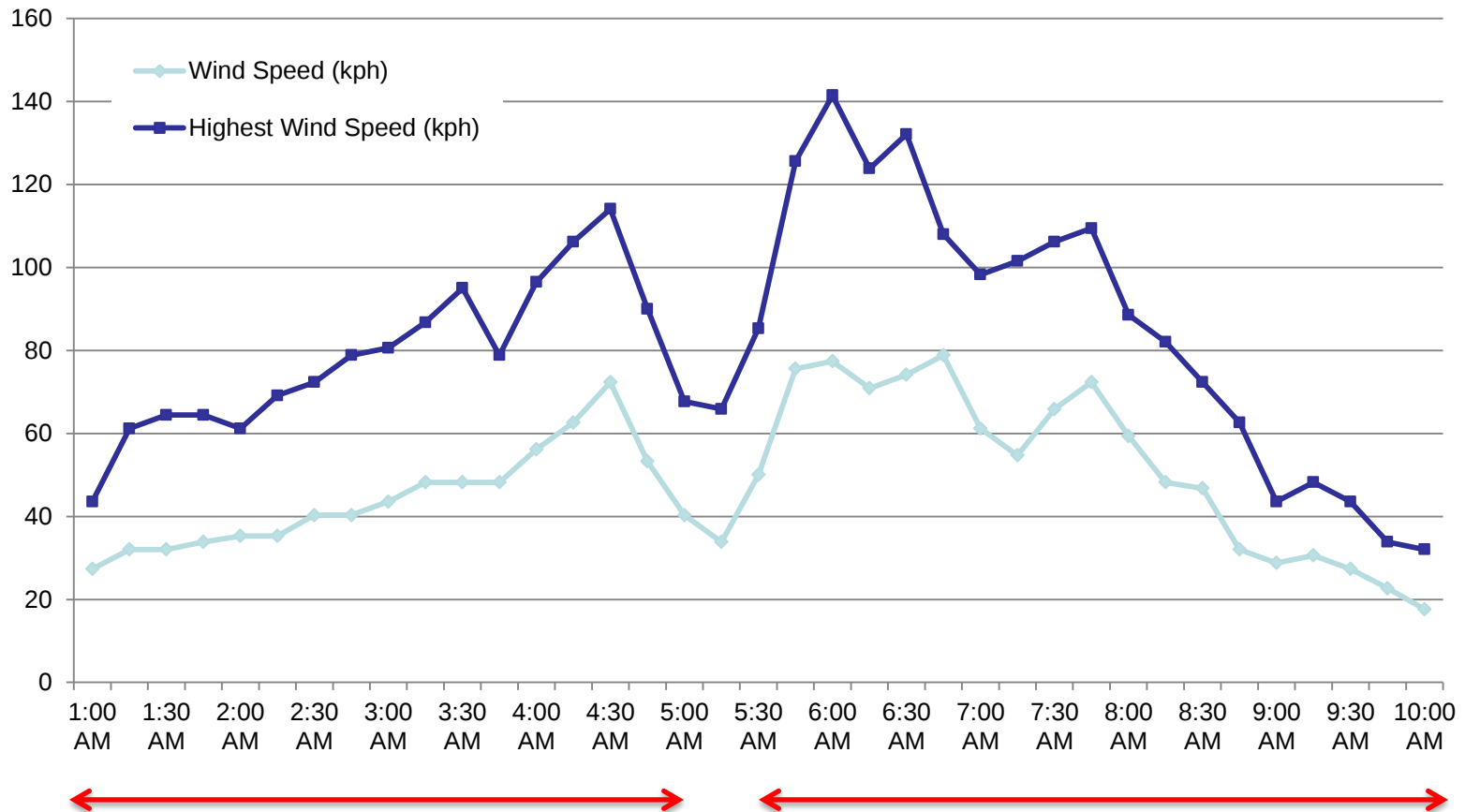
Project Leaders:
Dr. Agustin B. Molina – Bioversity International
Dr. Lavernee S. Gueco – CSC-IPB, UP Los Baños
Dr. Fe M. Dela Cueva– CSC-IPB, UP Los Baños



AWS

Typhoon Glenda Wind Speed Data

(as recorded in the Automatic Weather Station
on July 16, 2014)



Wind direction: NW

Wind direction: SE

Batch 2: After Typhoon Glenda



Percentage Typhoon Glenda Damage

Variety	% Typhoon damage*	% Typhoon damage**
Local		
Lakatan	100.00 ^a	100.00 ^a
Dippig	96.97 ^a	96.97 ^a
Cardaba	96.30 ^a	96.30 ^a
Latundan	100.00 ^a	83.33 ^{ab}
Introduced		
Cavendish	95.83 ^a	47.73 ^b
Kluai namwa	53.70 ^b	43.25 ^b

* % damage of all standing plants (including harvested plants)

** % damage of all standing plants (harvested plants not included)

*** All GCTCV cultivars had 100% damage

Kluai Namwa: After Typhoon Glenda



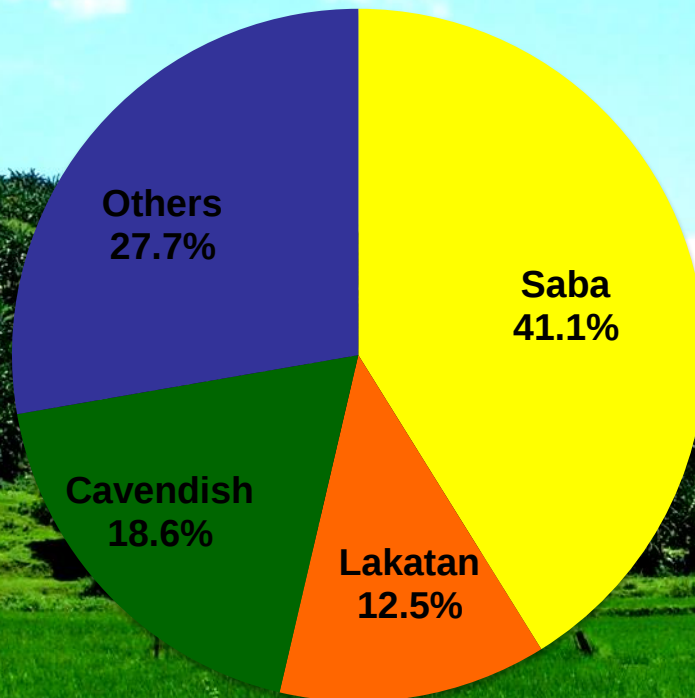
Rehabilitation: After Typhoon Glenda



Saba is the most important local banana cultivar in the Philippines

183,479 ha. total land area (2014)
2.56 M metric tons production (2014)

Area of Production



SABA





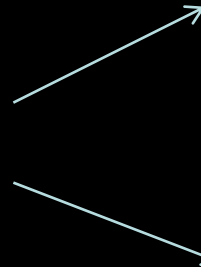
Development/Selection of Dwarf Saba Cultivars



Tall Saba



Short Saba



Irradiation

Collected naturally
Occuring 'Saba' with
short stature

Germplasm collection of different Saba Strains with short stature



Agronomic Traits of Promising 'Saba' strains as compared to Saba

Agronomic traits	Saba	Promising 'Saba' Strains			
		LSG001	LSG002	LSG003	LSG004
Pseudostem height (m)	4.5 - 5.0	3.24	3.04	3.65	3.32
Pseudostem girth (cm)	68	65	62	78	74
Days to flowering	391	221	221	311	333
Days to harvest	644	351	372	443	415
Bunch weight (kg)	26-28	29.2	26.3	26.2	23
Bunch wt per annum (kg)	14.7-15.9	30.4	25.8	21.6	20.2
No. of hands	8	10	9	9	8
No. of fingers	162-198	182	180	152	146

Typical Height of Saba



Foundation stocks: LSG 001



Foundation stock: LSG 002



Foundation stock: LSG 003



Foundation stock: LSG 004



Multi-location Trial



LSG001: Shooting @ 8 map!



Conclusions

- In general, plants with short plant stature and bigger pseudostem girth are more tolerant to wind damage.
- Early maturing cultivar have the advantage of having less time exposed to pest and diseases, as well as abiotic stress like typhoon, drought, etc... which are expected to occur more frequently in the future due to climate change.

Recommendations

- Breeding/Selection cultivars with short stature, big pseudostem, early maturing, and fruits with superior qualities.
- Develop strategies to reduce the damage caused by strong winds: such as the use of wind breaks, plant support, annual cropping, proper timing, and other cultural management practices.
- Crop insurance (like Weather Index Based Insurance)?

Plant support



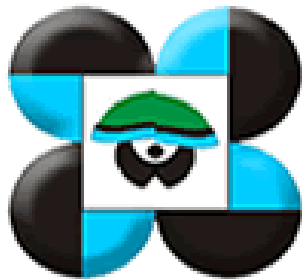
Intercropping/Wind break?



Acknowledgement



**Bioversity International
Asia Pacific Region – Philippines**



**Department of Science and Technology:
Philippine Council for Agriculture, Aquatic, Forestry
And Natural Resources Research and Development**



Thank You!