



Example Variety

24.Nov.2015

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- ✓ Purpose of example varieties
- ✓ Criteria of example varieties

How to use Example Varieties

How to set up Example Varieties

Evaluation of characteristics

Can you evaluate this characteristics without Example Varieties ?

4	40 VG	Leaf: anthocyanin coloration	Example variety	Notes
QL	(a)	absent		1
		present		9

32	60. VS	Panicle: awns	Example variety	Notes
QL		absent		1
		present		9

Evaluation of characteristics

2	40 VS	Basal leaf: sheath color	Example variety	Notes
PQ		green		1
		green with purple lines		2
		light purple		3
		purple		4

11	40 VS	Leaf: shape of ligule	Example variety	Notes
(+)				
PQ	(a)	truncate		1
		acute		2
		cleft	3	



1

truncate



2

acute

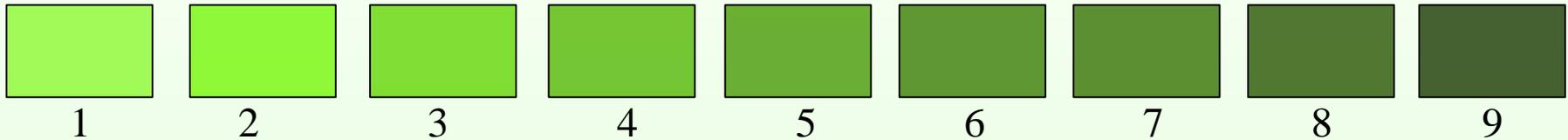


3

cleft

Evaluation of characteristics

3	40 VG	Leaf: intensity of green color	Example variety	Notes
QN	(a)	light		3
		medium		5
		dark		7



CPVO's TG

1	40 VG	Leaf: intensity of green color	Example variety	Notes
QN		light	Lemont	3
		medium	Bahia	5
		dark	Puntal	7

Evaluation of characteristics

26 (*)	70 VS	<u>Non-prostrate varieties</u> <u>only: Stem length</u> <u>(excluding panicle)</u>	Example variety	Notes
QN		very short	Lampo, Leda	1
		short	Loto, Thaibonnet	3
		medium	Ariete, Bahia	5
		long	Baldo	7
		very long	Carnaroli	9

Purpose of Example Variety

What is Example Variety?

Clarify the states of expression of a characteristics

(a) illustration of a characteristic and/or

(b) assigning appropriate “state of expression” to each variety

(Bio-ruler for a state of expression in QN)



✓ *harmonized approach for characterization*



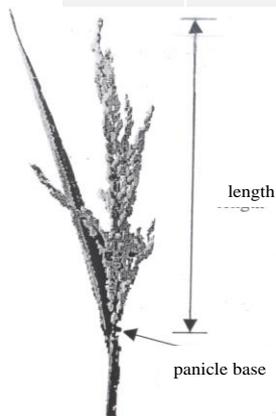
reduce the differences in characterization in testing year, location

Purpose of Example Variety

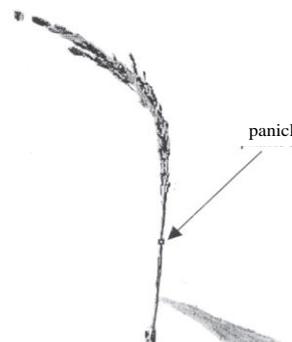
(a) illustration of a characteristic

TG/016 Rice

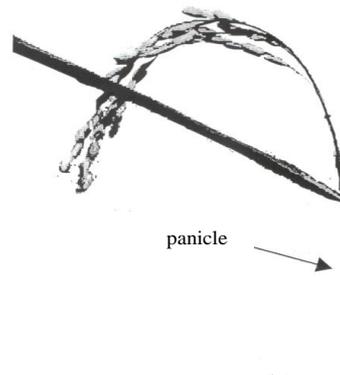
39 (* (+)	90 VG	Panicle: attitude in relation to stem	Example variety	Notes
PQ		upright	Elio, Roncolo	1
		semi-upright	Ariete, Lido	2
		slightly drooping	Guadamar, Thaibonnet	3
		strongly drooping	Galatxo, Vialone Nano	4



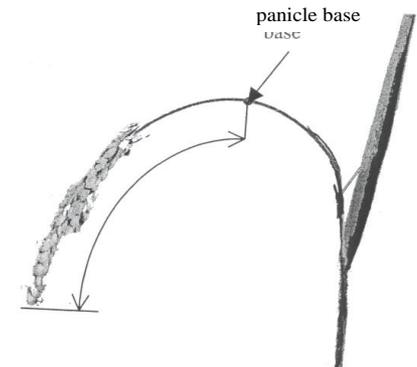
1
upright



2
semi-upright



3
slightly drooping



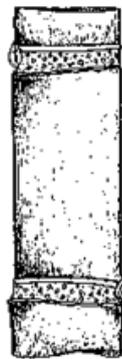
4
strongly drooping

Purpose of Example Variety

(a) illustration of a characteristic

TG/186 Sugarcane

10. (* (+)	Internode: shape	Example variety	Notes
	cylindrical	Q169, RB72-454	1
	tumescent		2
	bobbin-shaped	H56-752	3
	conoidal		4
	obconoidal	H60-3802	5
	concave-convex	Q115	6



cylindrical



tumescent



bobbin-shaped



conoidal



obconoidal



concave-convex

Purpose of Example Variety

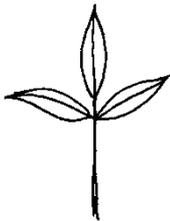
(a) illustration of a characteristic

TG/215 Clematis

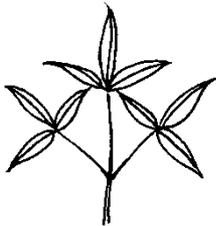
6. (* (+) QL	Leaf: type	Example variety	Notes
	simple		1
	ternate		2
	biterminate		3
	triterminate		4
	pinnate		5
	bipinnate		6
	tripinnate		7



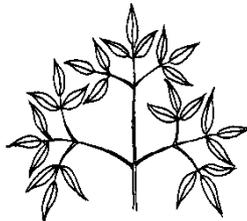
1



2



3



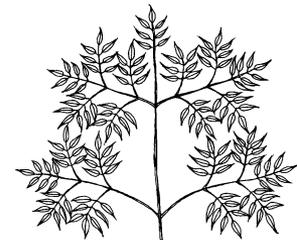
4



5



6



7

Purpose of Example Variety

What is Example Variety?

(b) assigning state of expression to each variety

19	55	Time of heading		
(*)	VG	(50% of plants with heads)	Example variety	Notes
QN		very early	Loto	1
		early	Albada, Cripto	3
		medium	Ariete, Bahia	5
		late	Bomba, Puntal	7

Purpose of Example Variety

What is Example Variety?

(b) assigning state of expression to each variety

23	65.	Lemma: anthocyanin		
(*)	VS	coloration of apex	Example variety	Notes
(+)		(early observation)		
QN		absent or	Ariete, Bomba	1
		very weak		
		weak	Thaibonnet	3
		medium	Cripto	5
		strong	Elio, Puntal	7
		very strong	Arborio	9

Purpose of Example Variety

What is Example Variety?

(b) assigning state of expression to each variety

26 (*)	70 VS	<u>Non-prostrate</u> <u>varieties only: Stem</u> length (excluding panicle)	Example variety	Notes
QN		very short	Lampo, Leda	1
		short	Loto, Thaibonnet	3
		medium	Ariete, Bahia	5
		long	Baldo	7
		very long	Carnaroli	9

Purpose of Example Variety

What is Example Variety?

(b) assigning state of expression to each variety

- ✓ **Actual measurement of QN can be influenced by the environment.**
- ✓ **The measurements are different depending on the year and location.**
- ✓ **Using the measured values, and trying to evaluate a characteristic, state of expression (or Note) might be changed by year or location.**
- ✓ **It needs to adjust the states of expression (or Note) for the year and location.**
- ✓ **It needs to use a relative measurement provided by the Example Varieties.**

Purpose of Example Variety

What is Example Variety?

(b) assigning state of expression to each variety

■ Absolute measurement

	length	note
Leaf blade: length		
short	30 ~ 34.9	3
Short to medium	35 ~ 39.9	
medium	40 ~ 44.9	5
Medium to long	45 ~ 49.9	
long	50 ~ 54.9	7

■ Relative measurement

VG/MS	Leaf blade: length	Example varieties	Note
QN	short	A	3
	medium	B	5
	long	C	7

Purpose of Example Variety

What is Example Variety?

(b) assigning state of expression to each variety

■ Absolute measurement

	length	note
QN Leaf: length		
short	30 ~ 34.9	3
Short to medium	35 ~ 39.9	
medium	40 ~ 44.9	5
Medium to long	45 ~ 49.9	
long	50 ~ 54.9	7

varieties	Variety X	note
Leaf: length		
Last year	42 cm	5
This year	47 cm	6

Variety X :

Different Notes in Last year and This year

it could be misleading to compare Notes from different year on the basis of absolute measurements.

Purpose of Example Variety

What is Example Variety?

(b) assigning state of expression to each variety

■ Relative measurement

MS	Leaf blade: length	Example varieties	Note
QN	short	A	3
	medium		5
	long	C	7

example varieties are provided

Purpose of Example Variety

What is Example Variety?

(b) assigning state of expression to each variety

■ Relative measurement

MS	Leaf blade: length	Example varieties	Note	Last year cm	This year cm
QN	short	A	3	32	36
	medium		5		
	long	C	7	52	56
		Candidate X		42	47

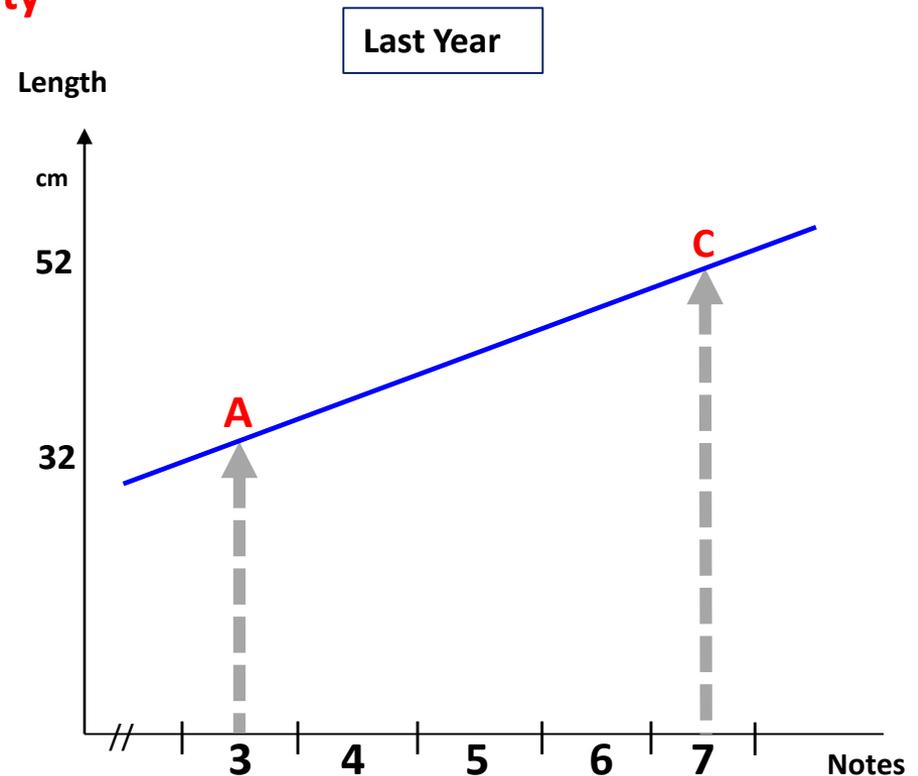
Purpose of Example Variety

What is Example Variety?

(b) assigning state of expression to each variety

■ Relative measurement

MS	Leaf blade: length	Example varieties	Note	Last year
QN	short	A	3	32 cm
	medium		5	
	long	C	7	52 cm



Purpose of Example Variety

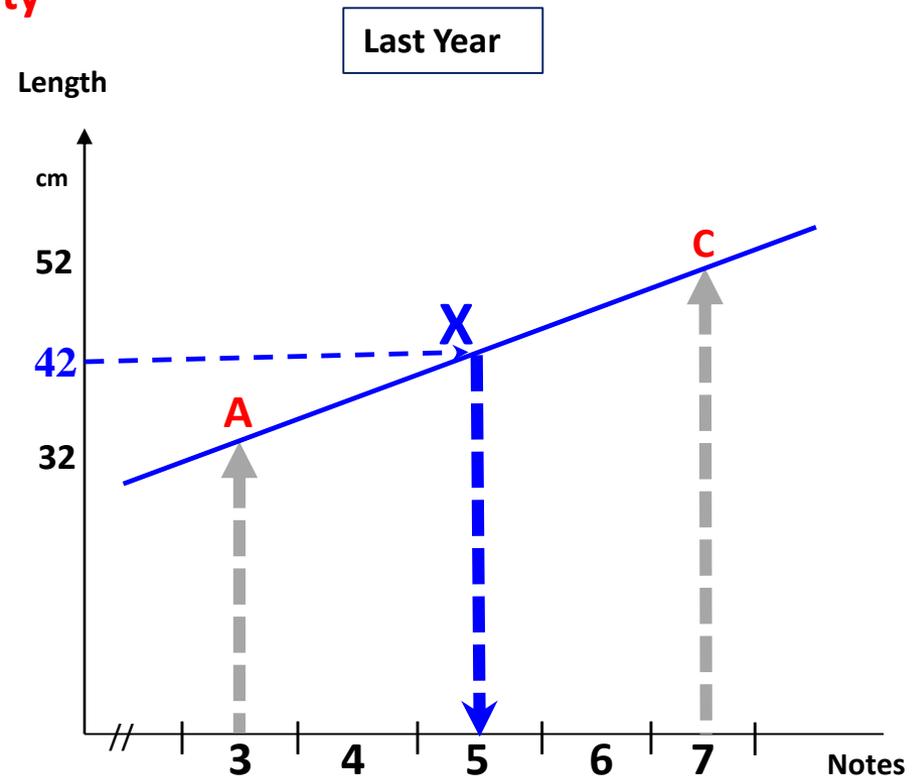
What is Example Variety?

(b) assigning state of expression to each variety

■ Relative measurement

MS	Leaf blade: length	Example varieties	Note	Last year
QN	short	A	3	32 cm
	medium		5	
	long	C	7	52 cm

Candidate X 5 42 cm



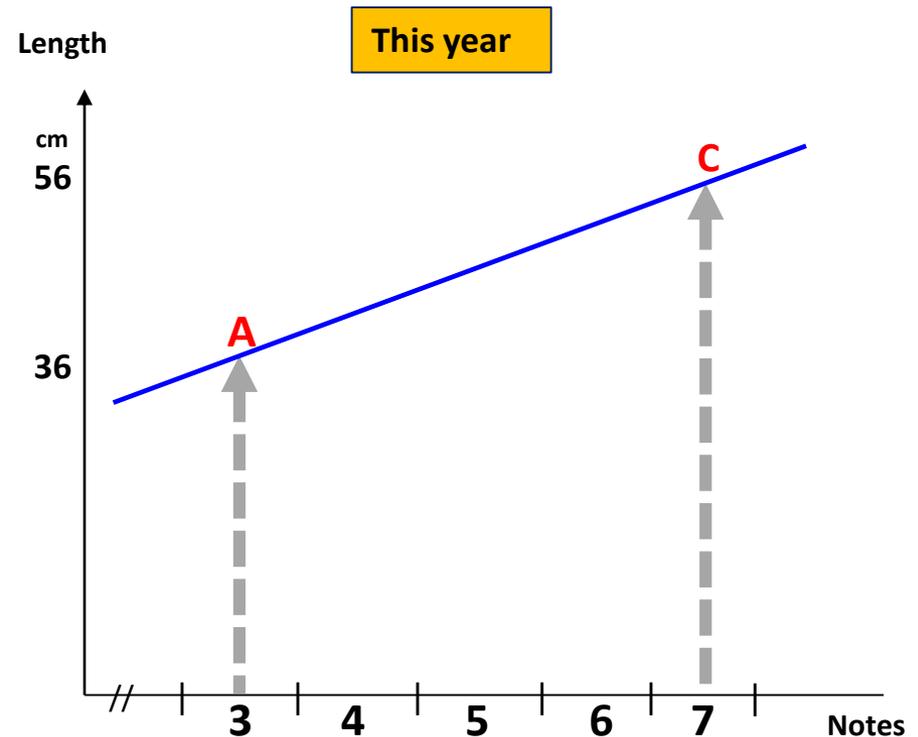
Purpose of Example Variety

What is Example Variety?

(b) assigning state of expression to each variety

■ Relative measurement

MS	Leaf blade: length	Example varieties	Note	This year
QN	short	A	3	36 cm
	medium		5	
	long	C	7	56 cm



Purpose of Example Variety

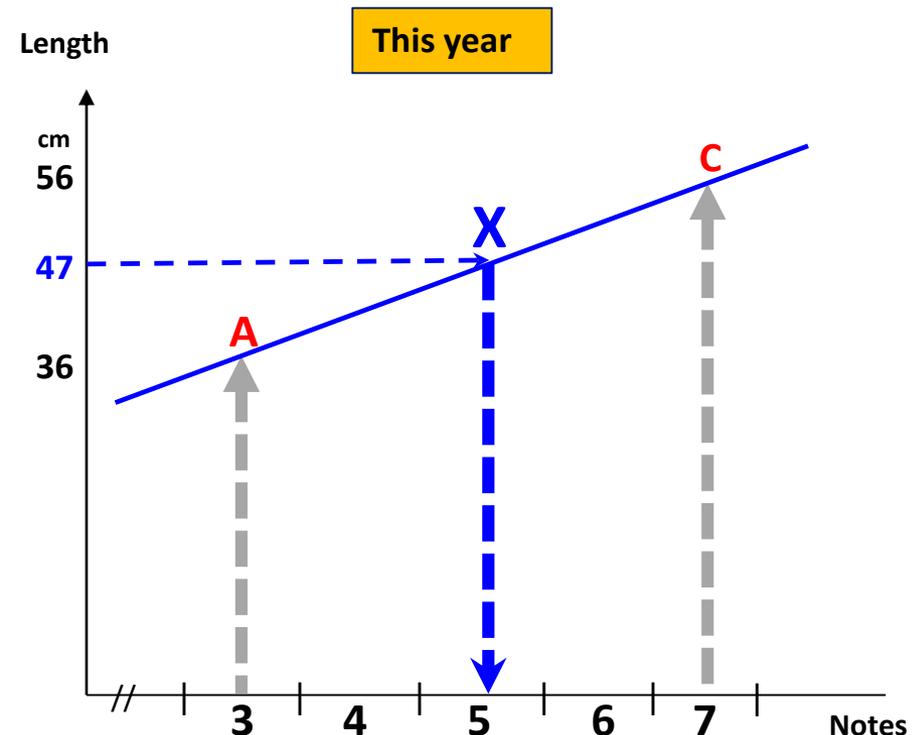
What is Example Variety?

(b) assigning state of expression to each variety

Relative measurement

MS	Leaf blade: length	Example varieties	Note	This year
QN	short	A	3	36 cm
	medium		5	
	long	C	7	56 cm

Candidate X **5** **47 cm**



Purpose of Example Variety

What is Example Variety?

(b) assigning state of expression to each variety

■ Relative measurement

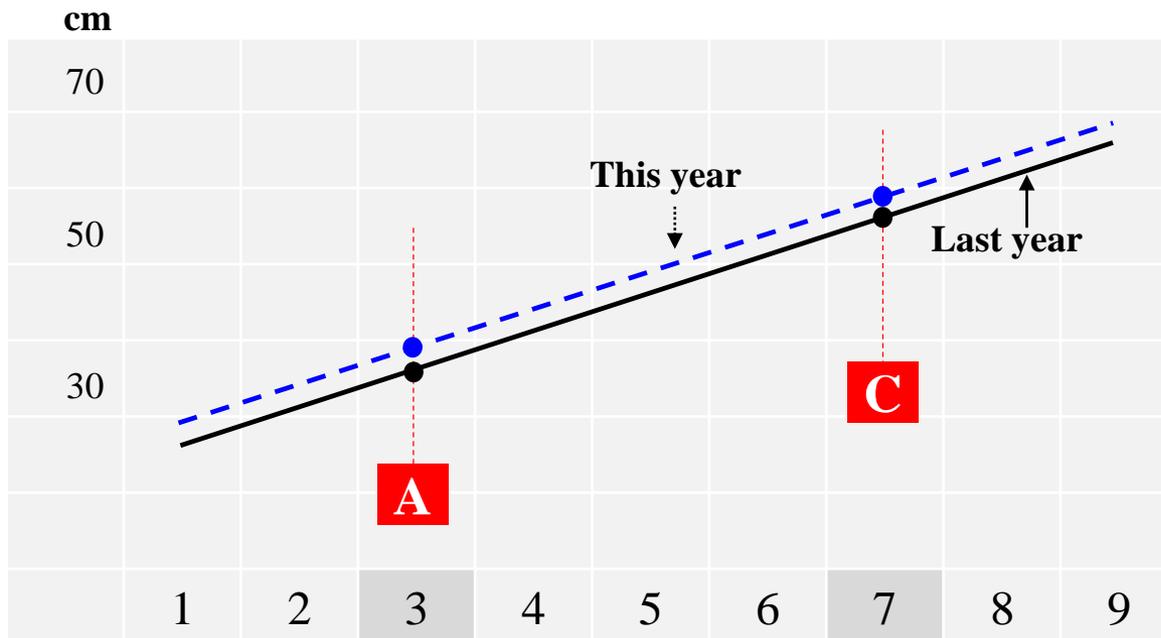
MS	Leaf blade: length	Example varieties	Note	Last year cm	This year cm
QN	short	A	3	32	36
	medium		5		
	long	C	7	52	56
		Candidate X		5 42	5 47

Purpose of Example Variety

What is Example Variety?

(b) assigning state of expression to each variety

■ Relative measurement



✓ Measurement can be influenced by the environment.

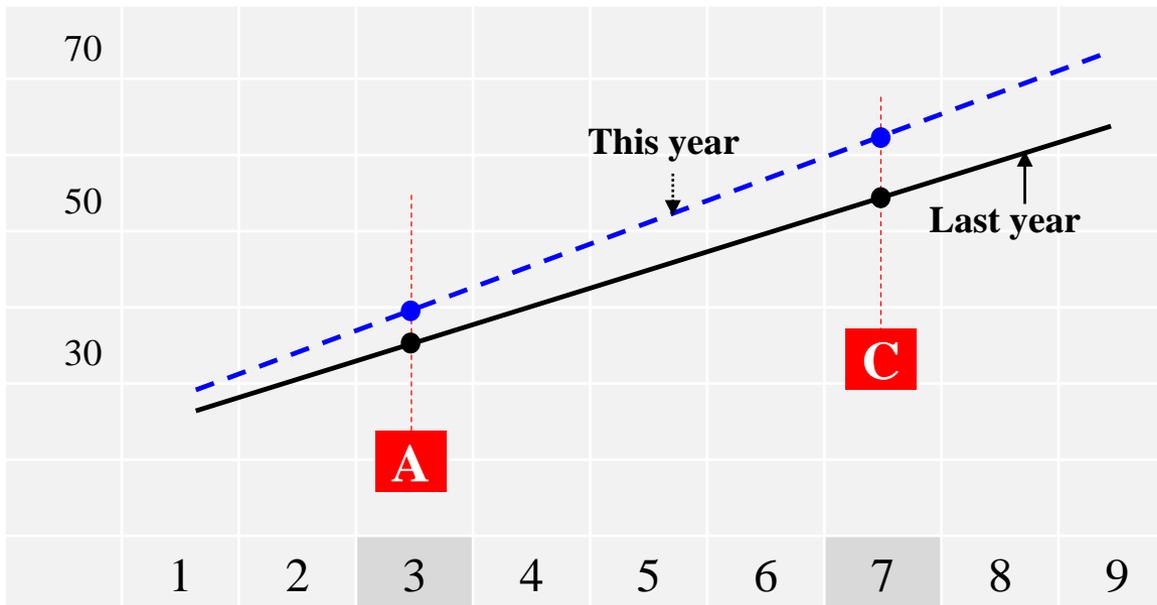
Notes

Purpose of Example Variety

What is Example Variety?

(b) assigning state of expression to each variety

■ Relative measurement



✓ Measurement can be influenced by the environment.

Purpose of Example Variety

What is Example Variety?

(b) assigning state of expression to each variety

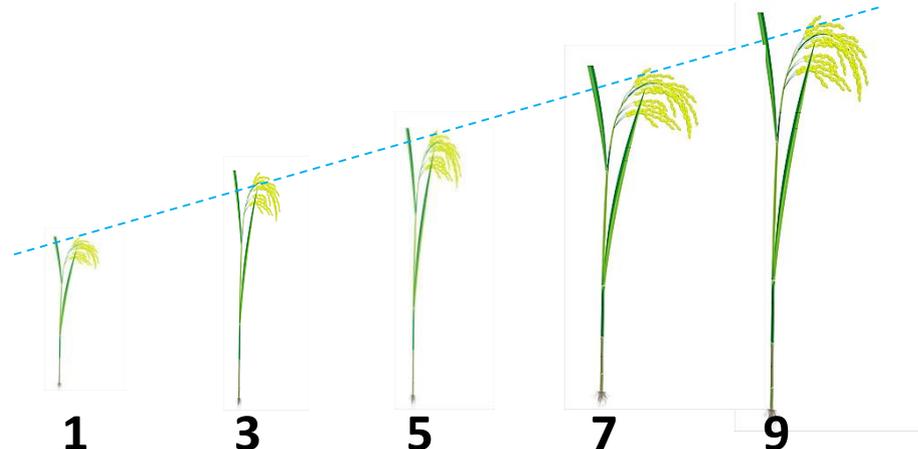
■ Relative measurement

		Last year			This year		
	Example varieties	length	range	Variety X	length		Variety X
leaf: length				42cm			47cm
short (3)	A	32	30 -34		36	34 - 38	
short to medium			35 -39			39 -43	
medium (5)			40 -44	5		44 - 48	5
medium to long			45 - 49			49 - 53	
long (7)	C	52	50 - 54		56	54 - 58	

Evaluation of characteristics

(b) assigning state of expression to each variety

26 (*)	70 VS	<u>Non-prostrate varieties</u> <u>only: Stem length</u> <u>(excluding panicle)</u>	Example variety	Notes
QN		very short	Lampo, Leda	1
		short	Loto, Thaibonnet	3
		medium	Ariete, Bahia	5
		long	Baldo	7
		very long	Carnaroli	9



Criteria for Example Variety

What is Example Variety?

- ✓ Well known material freely and easily accessible,
- ✓ All desired states of expression should be covered with the minimum number of example varieties
- ✓ Expression must not change significantly with environment
- ✓ Should be uniform and stable, widely and freely available , easy to maintain

Criteria for Example Variety

What is Example Variety?

A example variety should cover as many example states as possible

		1	2	3	4	5	6	7	8	10 (*)	12
		1.(+)VS QN	2.VS PQ	3.VG QN	4.VG QL	5.VG PQ	6.VG QL	7 VG QN	8.VS QN	9.(*) VS QL	10 VS QL
new No.	Name of Variety	Coleoptile: Anthocyanin coloration	Basal leaf: Sheath color	Leaf: Intensity of green color	Leaf: Anthocyanin coloration	Leaf: Distribution of anthocyanin coloration	Leaf sheath: Anthocyanin coloration	Leaf sheath: Intensity of anthocyanin coloration	Leaf: Pubescence of blade	Leaf: Anthocyanin coloration of auricles	Leaf: Anthocyanin coloration of collar
1	Bắc thơm số 7 	1	1	5	1		1		3	1	1
14	BM 9962 							3			
5	Hoa khô 4										
6	Hương việt 3										
7	Khang dân 18 	1	1		1		1		7	1	1
18	Koshihikari kazusa 2 go										
10	Q5			7					9		

Criteria for Example Variety

What is Example Variety?

■ Necessity of example varieties

No need

A characteristic not influenced by the year or environment
(QL characteristics)

Need

A characteristic influenced by the environment

(QN and some PQ characteristics)

- ✓ QN : at least two states of expression should be provided.
- ✓ PQ : to provide a set of example varieties to cover the different types of variation within the range of expression of the characteristics.

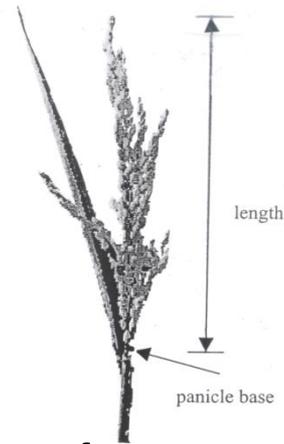
■ How to use Example Varieties

PQ characteristics

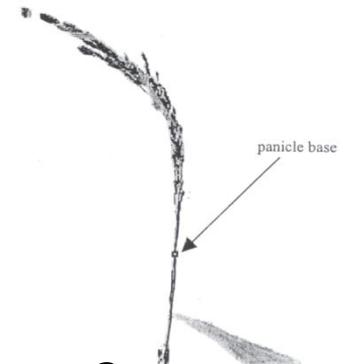
How to use the example varieties



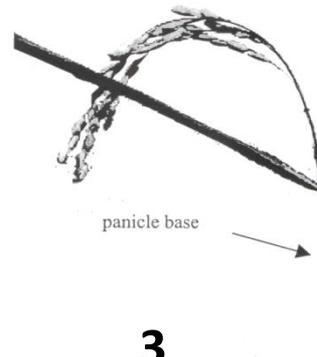
Select the most similar expression



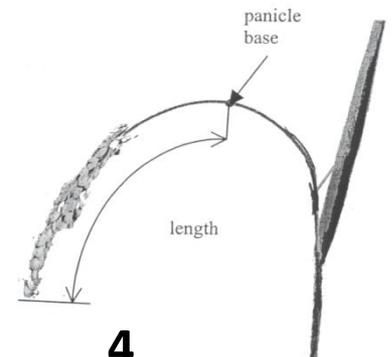
1



2



3

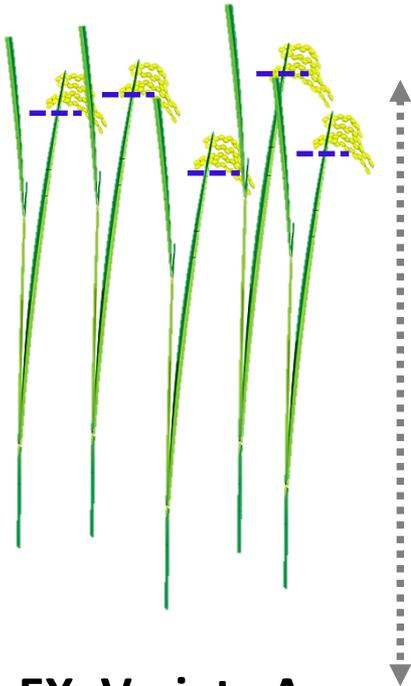


4

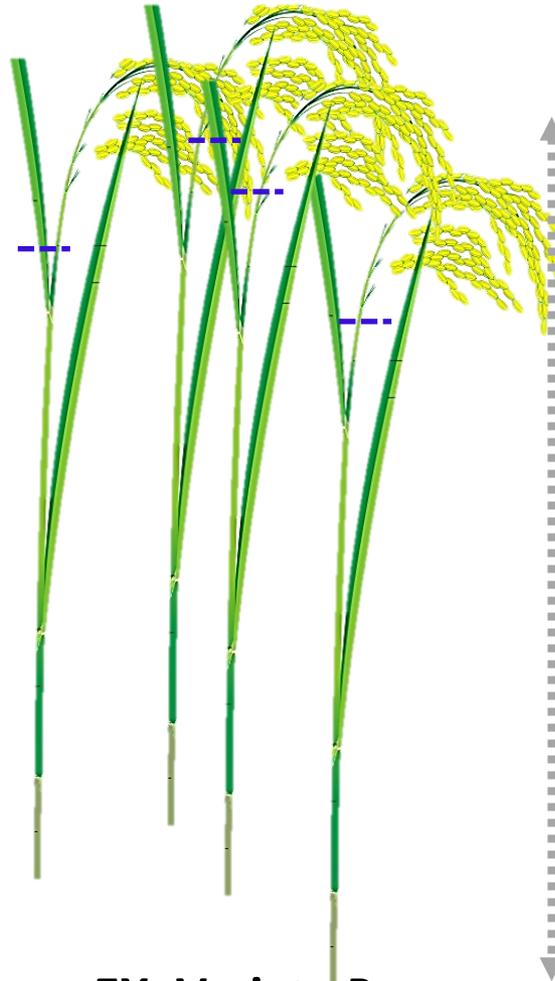
QN characteristics

How to use the example varieties

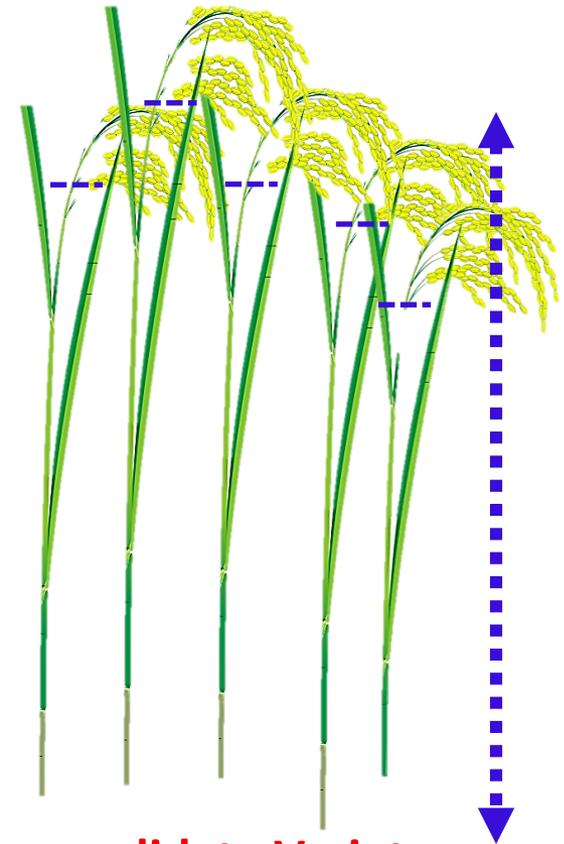
Plant Height: MS
measurement



EX. Variety A
(Note 3)



EX. Variety B
(Note 7)



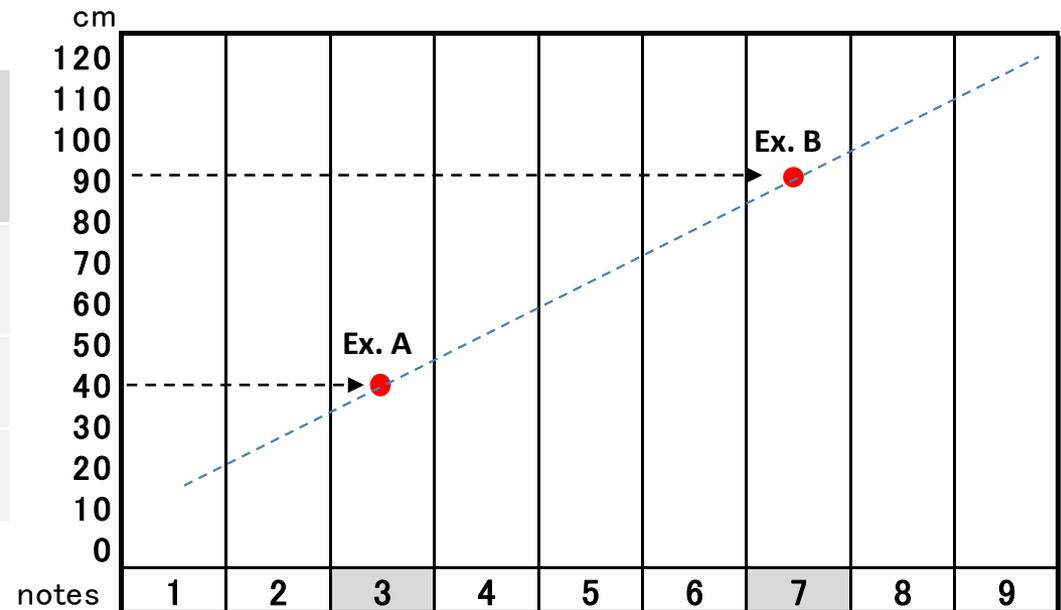
candidate Variety
(Note ?)

QN characteristics

How to use the example varieties

■ Converting measurements to notes

VS QN	Stem length	Example variety	Notes	Height
	short	A	3	40cm
	medium		5	
	long	B	7	90cm

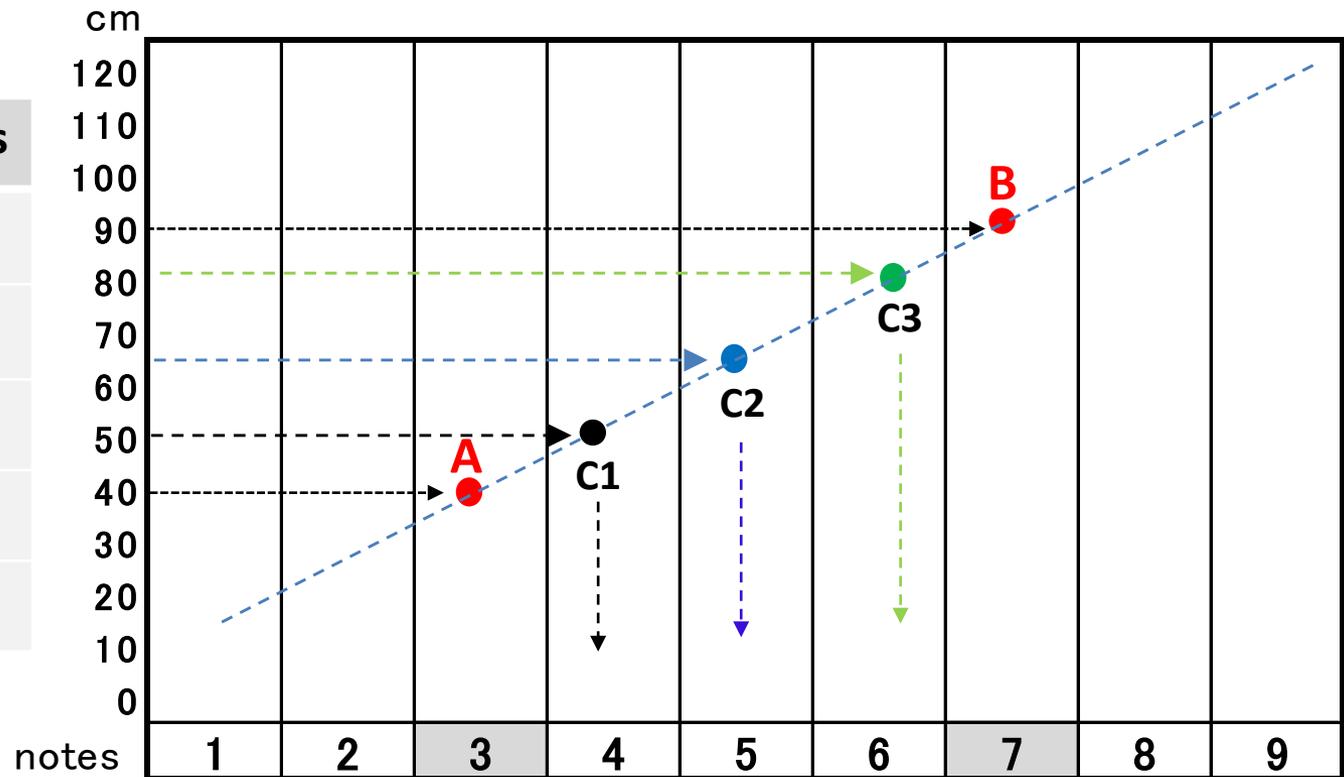


QN characteristics

How to use the example varieties

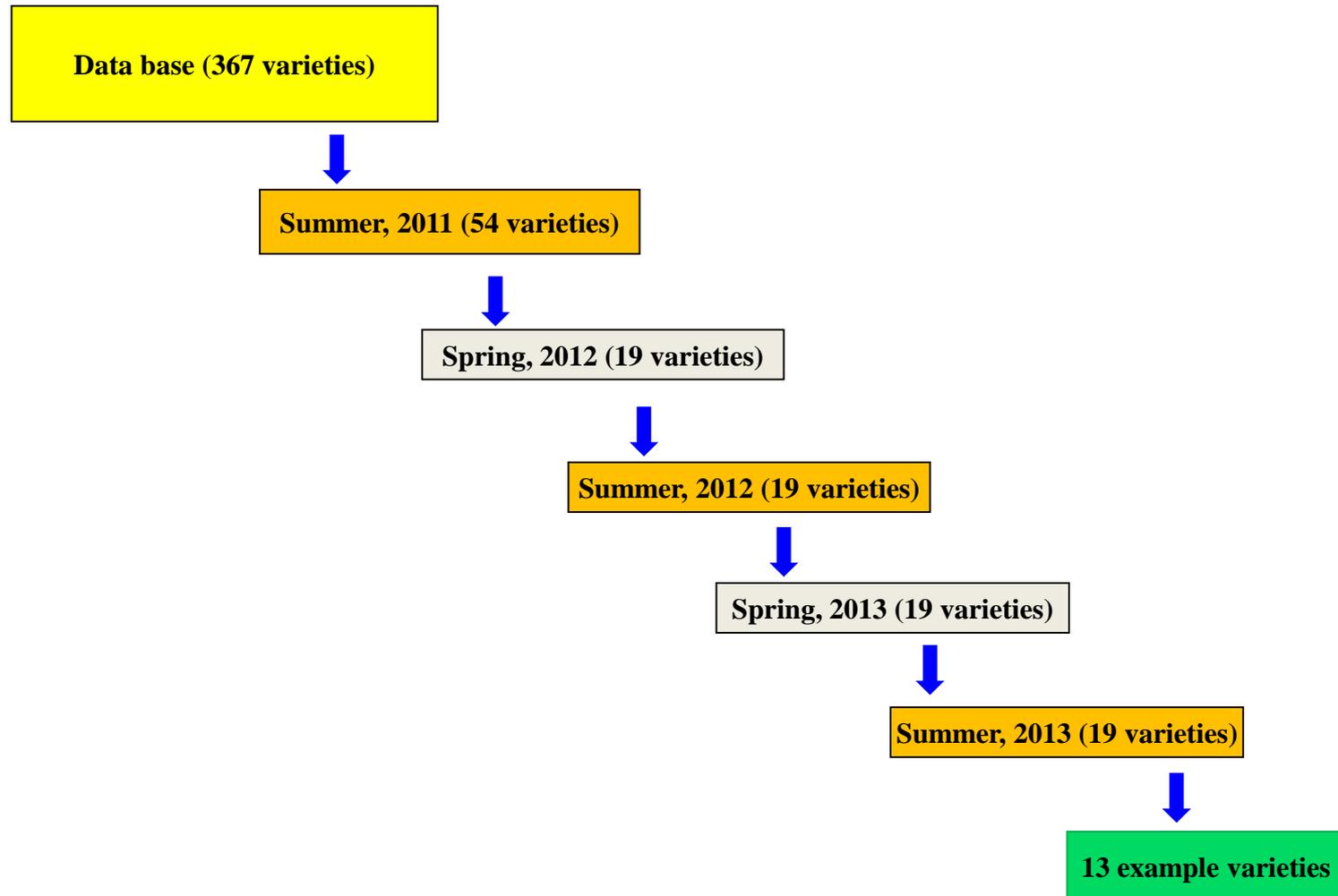
■ Converting measurements to notes

variety	height	Notes
A	40_{cm}	3
B	90	7
C1	50	4
C2	65	5
C3	82	6



■ How to set up Example Varieties

The process of selection of Example Varieties for Rice in Vietnam



Step for selecting example varieties

How to set up Example Varieties

Example: plant height

■ Step1: collecting data

- ✓ Collect the existing varieties
- ✓ Measuring "plant height" of above varieties by Growing test

■ Step2: analyzing the data

- ✓ Sort the data. Find Max and Min value from the data.

1	2	3	4	5	6	7	8	9	10
71	72	72	72	73	76	76	77	77	77
11	12	13	14	15	16	17	18	19	20
78	78	80	80	81	81	83	83	84	84
21	22	23	24	25	26	27	28	29	30
85	85	87	87	89	89	89	91	91	91
31	32	33	34	35	36	37	38	39	40
91	93	93	94	96	97	102	105	106	107

Step for selecting example varieties

How to set up Example Varieties

■ Step2: analyzing the data

- ✓ Put the Max. value to note 7 or 8, and put the Min. value to note 2 or 3 according to number of tested data.

notes	1	2	3	4	5	6	7	8	9
			71				107		

- ✓ calculate an interval value = range / (7-3) = $(107 - 71) / 4 = 36 / 4 = 9$

notes	1	2	3	4	5	6	7	8	9
			71				107		


↔ 9 ↔ ↔ 9 ↔ ↔ 9 ↔

Step for selecting example varieties

How to set up Example Varieties

■ Step2: analyzing the data

✓ calculate an interval value = range / (7-3) = $(107 - 71) / 4 = 36/4 = 9$

notes	1	2	3	4	5	6	7	8	9
			71				107		

↔ 9 ↔ ↔ 9 ↔ ↔ 9 ↔

✓ Calculate the value of range of Note 3 as "71" is middle value in the range of Note3.

notes	1	2	3	4	5	6	7	8	9
			66.5- 75.5 71				102.5- 111.5 107		

↔ 4.5 ↔ ↔ 4.5 ↔ ↔ 4.5 ↔ ↔ 4.5 ↔

Step for selecting example varieties

How to set up Example Varieties

■ Step2: analyzing the data

- ✓ Calculate the range of Note 3 as "71" is middle value in the range of Note3.

notes	1	2	3	4	5	6	7	8	9
			66.5- 75.5 71				102.5- 111.5 107		
			← 4.5 4.5 →				← 4.5 4.5 →		

- ✓ calculate the range of each note

notes	1	2	3	4	5	6	7	8	9
interval	~57.4	57.5~	66.5~	75.5~	84.5~	93.5~	102.5~	111.5~	120.5~

[note setting table]

Step for selecting example varieties

How to set up Example Varieties

■ Step2: analyzing the data

Attribute the note to each variety according to [note setting table]

1	2	3	4	5	6	7	8	9	10
71	72	72	72	73	76	76	77	77	77
03	03	03	03	03	04	04	04	04	04
11	12	13	14	15	16	17	18	19	20
78	78	80	80	81	81	83	83	84	84
04	04	04	04	04	04	04	04	04	04
21	22	23	24	25	26	27	28	29	30
85	85	87	87	89	89	89	91	91	91
05	05	05	05	05	05	05	05	05	05
31	32	33	34	35	36	37	38	39	40
91	93	93	94	96	97	102	105	106	107
05	05	05	06	06	06	06	07	07	07

■ Example: Stem: length 50 existing Variety

- ✓ Max: 107 , Min: 71, range: 36
- ✓ Average: 85.5 cm
- ✓ Number or range = 4 (07 – 03)
- ✓ interval values for each note: 9cm

Step for selecting example varieties

How to set up Example Varieties

■ Step3: confirming the data

- ✓ Confirm the data of each variety by re-examination.
 - Make a “note setting table” and attribute the note to each variety in second year.
- ✓ Compare both notes of each variety in first year and second year.
- ✓ Select the varieties the both notes showed the stable value in first year and second year.
- ✓ Finally select a representative variety for each note as example variety.

Step for selecting example varieties

How to set up Example Varieties

Table of Example varieties and notes (only QN characteristics)

	Leaf blade: Length	Leaf blade: Width	Time of heading (50% of plants with heads)	Stem: Thickness	Non-prostrate varieties only: Stem length (excluding panicle)	Panicle: Length of main axis	Panicle: Number per plant	Time of maturity	Grain: Weight of 1000 fully developed grains	Grain: Length	Grain: Width	Decorticated grain: Length	Decorticated grain: Width
BM 9962					7	7							
ĐTL2							3						
Hoa khô 4		5										5	
Hương việt 3				5									3
Khang dân 18									3		3		
Koshihikari kazusa 2 go			3	3	3	3	5	3		3		3	7
NTL1	6		5					5	8				
NV1											7		
P6 đột biến		3											
Q5	4												
ST7										7			

Step for selecting example varieties

How to set up Example Varieties

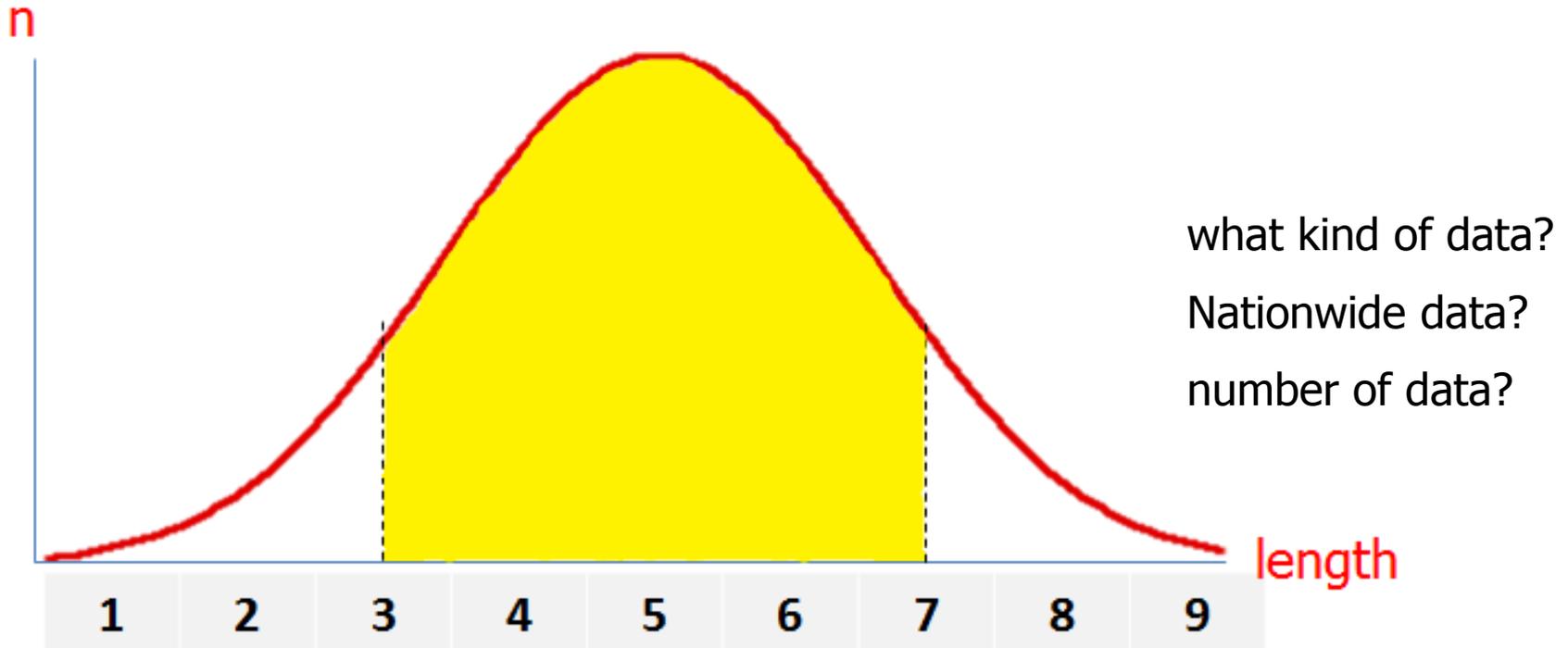
	Vietnamese	English	Japanese	Gi ai đo ạ	M ã số	Example varieties
26 Q N VS	Thân: Chiều dài (trừ bông). Chỉ với giống không bò lan	Stem: length (excluding panicle). Non-prostrate varieties only	稈: 長さ (穂を除く、浮稲を除く)	70		Koshihikari kazusa 2 go BM9962
	Rất thấp	very short	極短			
	Thấp	short	短			
	Trung bình	medium	中			
	Cao	long	長			
Rất cao	very long	極長				



Step for selecting example varieties

How to set up Example Varieties

■ How to allocate the Notes



**Thank you
for your attention**

Email: tadao.mizuno@gmail.com