

## Interlinkage of Vascular System in Rice Panicle.

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### Objective.

To investigate the interlinkage of vascular system in the panicle.

### Materials and Methods

At heading stage, about 2 to 3 cm internode just below the rice peduncle was sampled, and the hand free transverse sections were made. The number and size of vascular bundle, and the inner vascular bundle( IVB) located panicle base and top of the peduncle and those entering the primary branch (PB) were counted from transverse section of the main culm.

### Results and Discussion

1. Although the number of IVB on the main axis decreased in all cultivars after each node, this reduction was not equal to the IVB that entered the primary branch originating from the panicle node. Three patterns typified: 1) the difference between the number of IVB at the panicle base and top of the panicle was more than the number of IVB entering PB (IR 30 ), 2) less than that entering the PB (Rewa), 3) similar to that entering the PB (IR 47705).
2. Vascular system in peduncle merged during PB formation, and the varietal differences were noted for rebranching in panicle.
3. The number of spikelets per PB and spikelets per IVB had the same trends, decreasing from top to base. However, the middle branches had more spikelet than top and basal branch.
4. Most of heavy grains were at the top branches in IR 30 and IR 47705 while Unbong produced heavy grains on the basal branches.

Table Varietal differences between number and area of inner vascular bundle (IVB) in main culm, 1989 DS.

CULTIVAR	INNER VASCULAR BUNDLE (no.)	PEDUNCLE THICKNESS (mm <sup>2</sup> )	AREA OF IVB. (X10 <sup>-3</sup> mm <sup>2</sup> )	
			Total	Single
IR30	23.8 b*	1.363 cd	105 c	4.4 c
M.83	22.0 b	1.498 c	117 bc	5.3 b
Hybrid	30.8 a	2.245 b	187 a	6.1 b
Unbong	10.3 d	1.185 cd	43 d	4.2 c
Rewa	28.3 a	2.725 a	210 a	7.5 a
IR47705	24.3 b	2.358 ab	142 b	5.8 b
Silewah	18.0 c	1.963 b	110 c	6.2 b

\*Treatment means having a same letter are not significantly different by DMRT at 5% level.

Table Varietal differences between the number of inner vascular bundle (IVB) at panicle base and IVB going to primary branches (PB) in a panicle.

CULTIVAR	NO. IVB AT PANICLE BASE	NO. IVB GOING TO PB	% UTILIZED IVB*	NO. IVB /PB	NO. SPIKELET /IVB
IR30	24.5	15.1	62	1.39	7.6
M.83	25.8	25.9	100	2.06	6.9
Hybrid	29.0	36.0	124	2.08	8.4
Unbong	10.3	13.9	135	1.48	7.6
Rewa	28.5	42.0	147	3.88	7.7
IR47705	22.3	20.7	93	1.36	6.3
Silewah	19.0	20.0	105	1.26	8.6

IVB : inner vascular bundle  
PB : primary branch

\* Total no. IVB going to PB / No. IVB at panicle base x 100

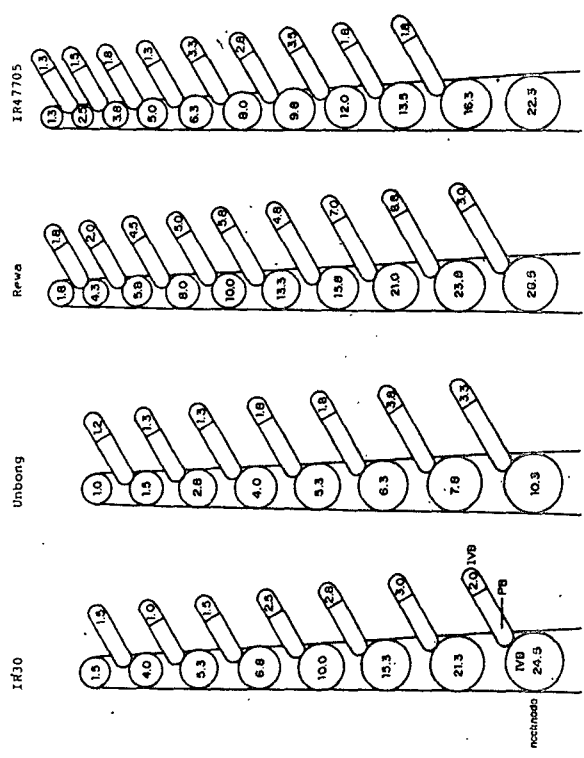


Fig. Comparison of interlinkage of inner vascular system in panicle axis and primary branch for different cultivars, 1989 DS.

Table 2. Number of spikelets and inner vascular bundles (IVB) per primary branch (PB), spikelets per IVB and percent grain density and weight in three cultivars, IRRI 1989 DS.

CULTIVAR	BRANCH ORDERS ON PANICLE AXIS (TOP TO BASE)									
	1	2	3	4	5	6	7	8	9	10
IR30	Spikelets (no.)/PB	2.3	13.0	12.8	14.3	12.3	10.0	8.8	5.0	(necnode)
	IVB (no.)/PB	1.5	1.5	1.0	1.5	1.9	1.4	1.2	1.5	
	Spikelet (no.)/IVB	8.2	8.7	12.8	9.5	6.4	7.1	7.3	3.3	
	HD grains (%)/PB	36	20	18	6	23	40	45	60	
IR45507	Heavy grain (%)/PB	91	47	82	75	55	60	38	80	
	Spikelets (no.)/PB	6.3	6.8	6.8	9.5	11.8	12.2	8.3	8.2	6.1
	IVB (no.)/PB	6.3	6.3	1.2	1.2	1.3	1.8	1.9	1.5	1.0
	Spikelet (no.)/IVB	4.8	5.2	5.9	7.9	9.1	6.7	4.5	5.4	8.1
Unbong	HD grain (%)/PB	17	11	17	22	33	21	4	0	31
	Heavy grain (%)/PB	83	78	67	56	50	33	25	20	18
	Spikelet (no.)/PB	4.8	4.6	10.5	10.8	13.8	16.8	13.2	13.4	(necnode)
	IVB (no.)/PB	1.0	1.2	1.3	1.3	1.8	1.5	1.8	1.4	1.2
IR47705	Spikelet (no.)/IVB	4.8	3.8	8.1	0.3	8.9	6.9	6.9	7.9	
	HD grain (%)/PB	33	0	6	0	73	83	89	78	
	Heavy grain (%)/PB	50	0	17	0	20	33	67	56	
	IVB (no.)/PB	3.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

HD : high density  
PB : primary branch in panicle  
IVB : inner vascular bundle