

SOME ASPECTS OF PLANT GROWTH IN
IMPROVED RICE VARIETIES

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The following growth aspects were studied for ten improved varieties of rice.

- (a) leaf development under direct sowing.
- (b) duration from sowing to visual panicle initiation (2 mm stage), heading and maturity when transplanted and,
- (c) seedling growth, tillering and leaf number under both direct sowing and transplanting.

The varieties were established in pots which were adequately fertilized to prevent nutritional disorders impairing growth. The seed rate for direct sowing was 100 kg/ha (2 bu/ac) and that for nurseries for transplanting was 500 kg/ha (10 bu/ac). Transplanting was done at a spacing of 15x15 cm. Tillering capacity of the varieties were investigated separately by giving the plants ample space (one plant per 1000 cm²) to avoid any inter-plant competition.

In nursery the high plant density led to inter-plant competition which had adverse effects on leaf development and tillering. A remarkable difference in leaf and tiller number was noticed between nursery seedlings and direct sown seedlings (Table 1).

When the plants were established one plant per 1000 cm², direct sowing seemed to encourage tillering. In addition to inter-plant competition in the nursery the act of transplanting itself hampered tillering. The low panicle number per plant experienced in direct sown crops therefore is a result of inter-plant competition although the plants are operating at their fullest tillering capacity.

Table 1. Leaf and tiller number at the end of seedling stage (average of five plants).

Variety.	Leaf Number		Tiller Number.	
	Sown	Nursery.	Sown	Nursery.
Bg 276-5	8.0	6.5	4.0	1.4
Bg 34-8	7.8	6.5	4.4	1.4
Bg 34-6	7.3	5.5	5.0	2.5
Bg 94-1	7.5	5.3	4.8	2.3
Bg 304-1	7.8	5.0	3.8	1.0
Bg 380	7.8	6.0	3.2	2.6
Bg 379-2	8.0	6.7	3.8	2.0
Bg 400-1	8.0	5.5	3.8	2.0
Bg 11-11	7.8	5.5	3.0	2.4
IR 8	7.8	5.5	3.2	2.4

Table 2. Leaf development and growth stages in relation to leaf number in direct sown crops.

Variety	Age (Months)	Leaf Number at				T o t a l	No. days per leaf.
		First tiller.	Pl* Pl	Visual Pl	Longest Leaf.		
Bg 276-5	3	4	10	12	12	14	3.91
Bg 34-8	3	4	10	12	11	14	3.97
Bg 34-6	3½	4	10	12	11	14	4.29
Bg 94-1	3½	4	11	12	12	15	4.77
Bg 304-1	3½	5	12	13	13	16	4.56
Bg 380	4	5	12	13	13	16	4.83
Bg 379-2	4½	5	13	14	13	16	4.89
Bg 400-1	4½	5	13	15	14	16	4.84
Bg 11-11	4½	5	14	15	14	17	4.70
IR-8	4½	5	14	15	14	17	4.70

Table 3. Duration from sowing to visual panicle (2 mm), heading and maturity in transplanted crops.

Variety	Duration (in days) from sowing to		
	Visual P1	50% Heading	Maturity
Bg 276-5	44	67	97
Bg 34-8	46	69	99
Bg 34-6	50	74	104
Bg 94-1	53	78	107
Bg 304-1	57	80	110
Bg 380	60	83	118
Bg 379-2	72	85	125
Bg 400-1	74	96	126
Bg 11-11	80	104	135
IR-8	72	86	126