Ministry of Agriculture, Livestock and Irrigation
Department of Agriculture
Ayeyarwaddy Region
Pathein Township

Study on The Effect of Different Sowing Dates on Heading Date, Yield and Yield Components of Pawsan Bay Kyar Rice

Kyi Kyi Oo
Assistant Staff Officer
Tha-Yaung-Chaung Seed Farm
8. March . 2023

Introduction

- ✓ Rice is the major cereal crops grown in Myanmar
- ✓ Rice is grown during the monsoon (5.6 million ha) and summer (1.2 Million ha) seasons in Myanmar

(FAOSTAT.2020)

- ✓ Rice is grown in all region of Myanmar, although the largest share of production comes from the Delta region (including 23% of the monsoon-season crop and 57% of the dry-season crop)

(LIFT.2019)

- ✓ Rice is basically a short-day plant and sensitive to photoperiod, known as

“ Date-Fixed ”





Introduction (cont.)

- ✓ Most traditional rice varieties in Myanmar are sensitive to photoperiod
- ✓ Pawsan (Meedon Group) rice are photoperiod sensitive varieties and widely grown in the district of Phyarpon, Ma-U-Bin, Labutta, Myaung Mya and Pathein of Ayeyarwddy Delta Region
- ✓ Pawsan Bay Kyar rice is a strongly photoperiod sensitive variety
- ✓ In Ayeyarwaddy region, Pawsan Bay Kyar variety sown at the end of May to Jun and heading date in 3rd week November and harvested in 3rd week December




Objectives

To investigate the effects of different sowing date on days to 50% heading date of Pawsan Bay Kyar variety

To study the effect of different sowing date on yield and yield components of Pawsan Bay Kyar variety

Problem Statement

- When Pawsan Bay Kyar (strongly photoperiod sensitive) variety was planted at the end of August in 2018, 50% heading date was at the end of November and decreased in the growth duration, plant height, panicle length and grain yield (number of total grain / panicle, filled grain/ panicle, filled grain % and 1000 grains weight) than normal sowing date (end of May to Jun).
- Based on the results, an experiment was carried out to verify the effect of different sowing dates on heading date, yield and yield components of Pawsan Bay Kyar variety.

Materials and Methods

1. Experimental Site	**Thayaung Chaung Seed Farm, Pathein (2021-2022 Monsoon season)**
2. Experimental Design	**RCB (7 × 3)**
3.Treatments	**7 (15 days interval)**
4. Seedling Age	**30 days**
5. Seedling per hill	**(Two to three) seedlings**
6. Spacing	**(20 × 20) cm**
7.Plot Size	**(15 × 20)′**

3. Treatments

Treatments	Sowing Date	Transplanting Date
T_1 (Jun 15)	15.6.2021	15.7.2021
T_2 (Jun 30)	30.6.2021	30.7.2021
T_3 (Jul 15)	15.7.2021	14.8.2021
T_4 (Jul 30)	30.7.2021	29.8.2021
T_5 (Aug 15)	15.8.2021	15.9.2021
T_6 (Aug 30)	30.8.2021	29.9.2021
T_7 (Sept 15)	15.9.2021	15.10.2021

Time and Rate of Fertilizer application

- ✓ **Total rate of fertilizer - Compound (50 kg/ac) + Urea (37.5 kg/ac) + Potash (37.5 kg/ac)**
- ❑ 10days after transplanted - Compound (25 kg/ac) +Urea (12.5 kg/ac) +Potash (12.5 kg/ac)
- ❑ Active Tillering Stage - Compound (25kg/ac) + Urea (12.5 kg/ac) + Potash (12.5 kg/ac)
- ❑ Panicle Initiation Stage - Urea (12.5 kg/ac) + Potash (12.5 kg/ac)

Data Collections

Heading stage	Harvest	After harvest
Days to 50% flowering	Plant height (cm) (5 hills/ plot)	Panicle length (cm) (5 hills/ plot)
	No. of effective tillers (20 hills/plot)	Filled grains per panicle (5 hills/ plot)
		Number of total grains per panicle (5 hills/ plot)
		Filled grains percent (%) (5 hills/ plot)
		1000 grains weight (g) (3 time/ plot)
		(15’ x 20’) plot yield (kg)
		Yield component (bsk / ac)
		Actual grain yield (bsk / ac)

- The data were analyzed for simple analysis of variance (ANOVA) and means comparisons were done by using Duncan’s Multiple Range Test (DMRT).

Results and Discussion

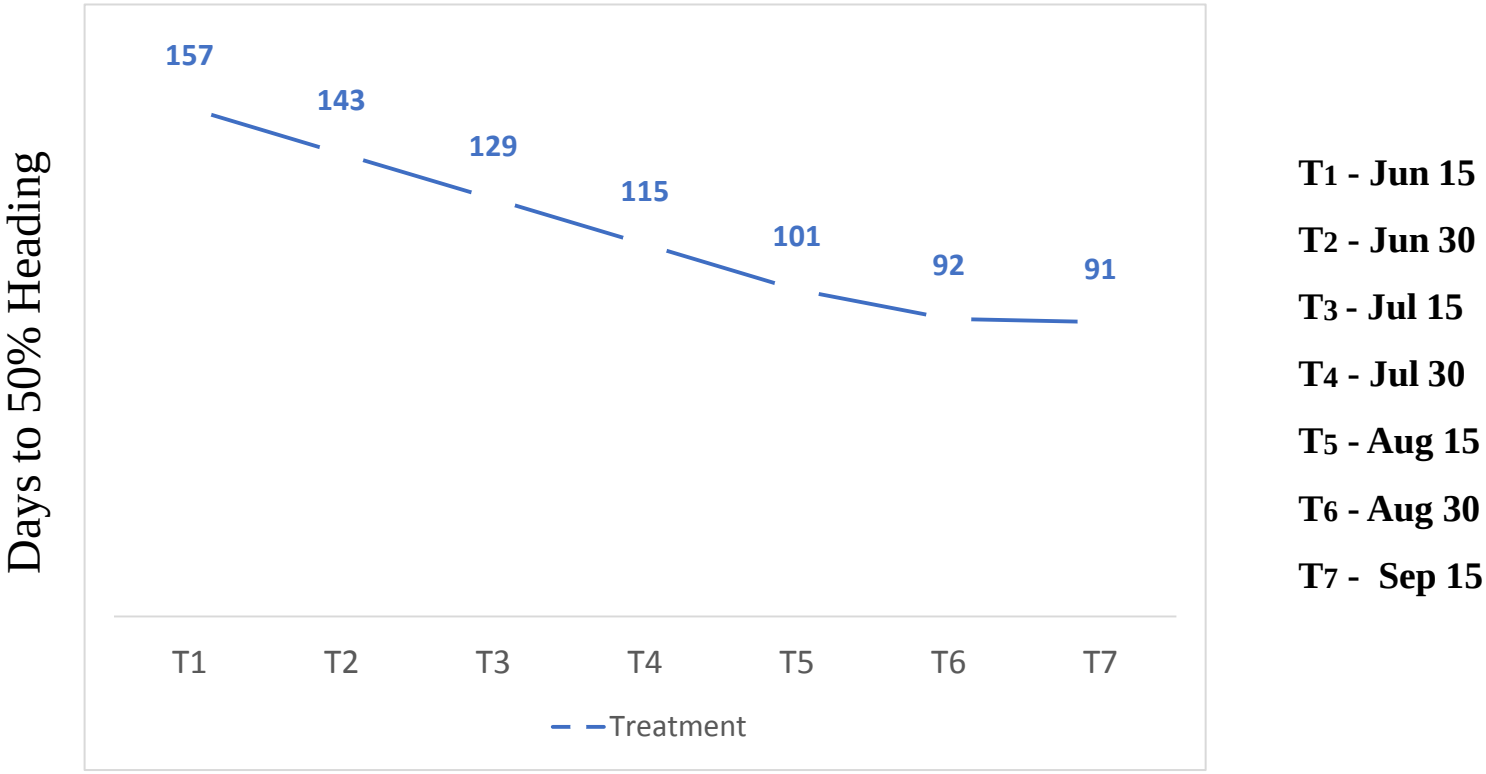

Figure 1.Effect of different sowing dates on days to 50% heading of Pawsan Bay Kyar variety

- **Photoperiod sensitive varieties are planted later than normal, they have a shorter growth duration (Yoshida. 1981, Safdar et al. 2013, Heo et al. 2017)**

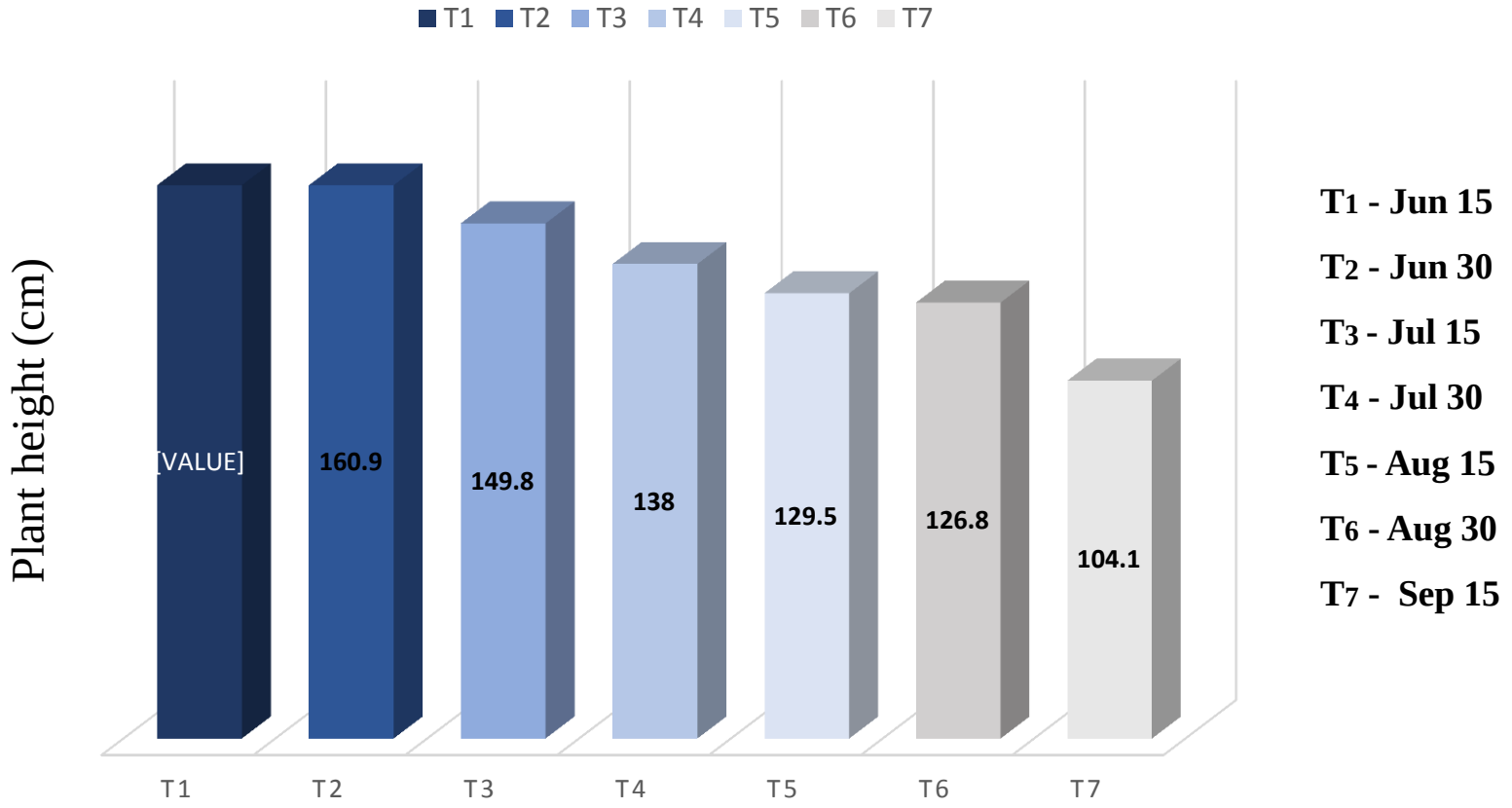

Figure 2. Effect of different sowing dates on plant height (cm) of Pawsan Bay Kyar variety

- **Photoperiod sensitive varieties are planted later than normal, they have a shorter plant height and less lodging. (Yoshida. 1981)**

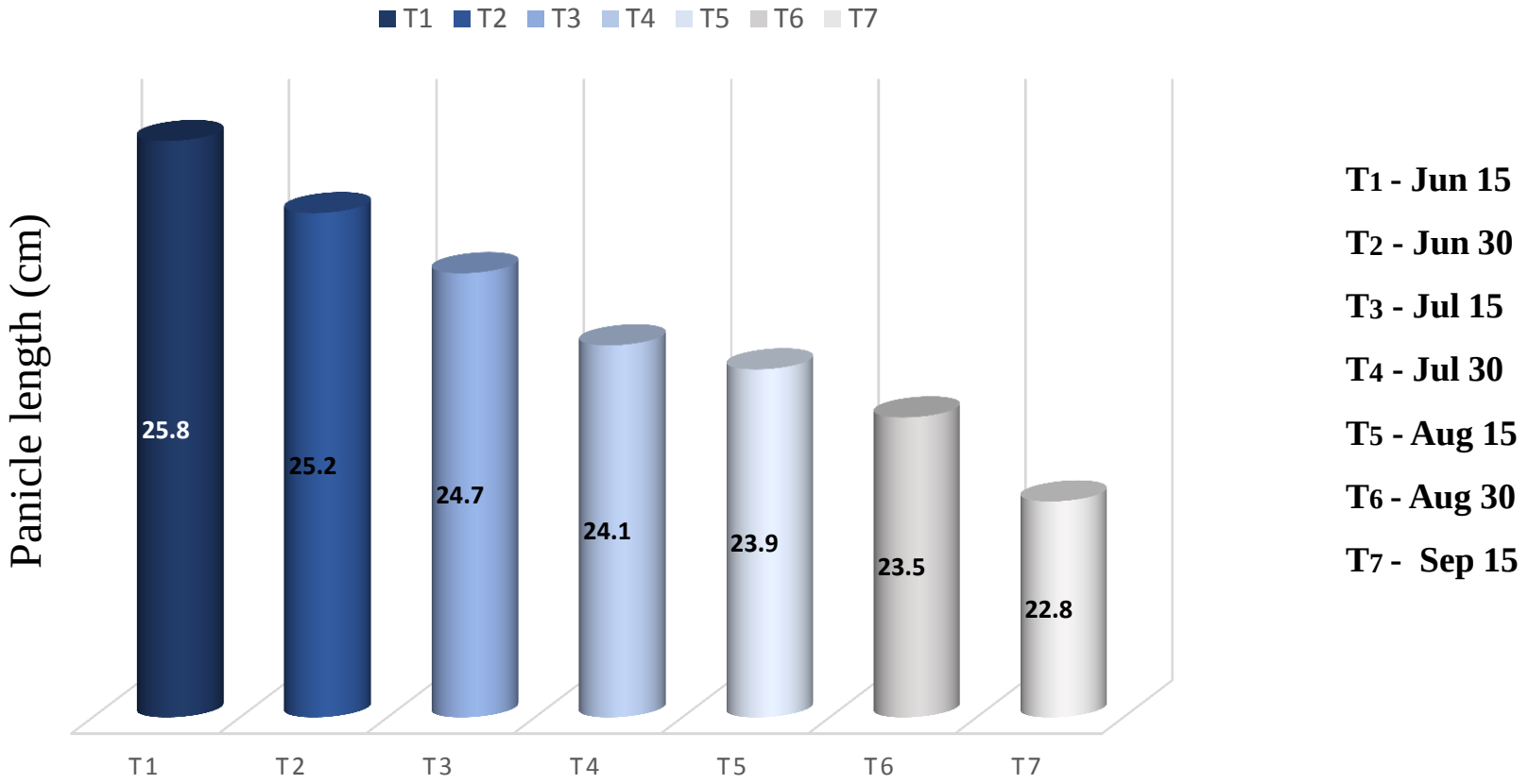

Figure 3. Effect of different sowing dates on panicle length (cm) of Pawsan Bay Kyar variety

❑ **Late sowing rice reduced panicle length (Dawadi and Chaudhary.2013)**

Table 1. Different sowing dates on Yield and Yield Components of Pawsan Bay Kyar variety

Teatment	No.of effective tiller	No. of Filled grain/ panicle	No.of total grain/ panicle	Filled grain %	1000 grain weight (g)	Yield component (bsk/ac)	(15x20)´ plot yield (kg)	Actual grain yield (bsk/ac)
Jun15	8.5a	94a	123a	76.24a	24.4a	91.22a	8.0	55.3a
Jun30	8.5a	97a	127a	76.44a	24.4a	94.36a	8.07	55.8a
Jul 15	8.2ab	82b	109b	75.16a	23.7b	74.96ab	7.96	55.0a
Jul 30	7.9ab	72c	107b	67.77b	23.7b	63.49ab	7.86	54.3a
Aug15	7.6b	65c	96c	67.58b	23.4c	54.25b	7.10	49.1b
Aug30	7.4b	59cd	96c	61.58c	23.3c	47.63c	5.93	41.0c
Sep15	7.1c	53d	89c	60.13c	23.3c	41.56d	5.7	39.4d
LSD(0.01)	0.56	6.97	8.51	4.75	0.26	4.25	-	1.3
F test	**	**	**	**	**	**	-	**

- **Late sowing date decreased in the number of effective tillers, number of total grain / panicle, 1000grains weight and grain yields (Tari.etal.,2007, Akbar.etal.,2010, Singh.etal.,2012, Limochi and Eskandari.2013.)**

Conclusion

- ✓ **50% heading of Jun 15, Jun 30 and Jul 15 flowered in 3rd week Nov whereas Jul 30, Aug 15 and Aug 30 flowered in 4th week Nov and Sep 15 flowered in 3rd week Dec**
- ✓ **Jun 15 and Jun 30 were observed the maximum in plant height, the number of effective tillers, the number of filled grains per panicle and the number of total grain per panicle, filled grain (%) and 1000 grain weight (g)**
- ✓ **The lowest filled grain (%) in Aug 30 and Sep 15 sowing date**
- ✓ **the lowest 1000grain weight was observed in Aug 15, Aug 30 and Sep 15**

Conclusion

- ✓ **The maximum grain yield was observed in Jun 30 (55.8 bsk/ac) and similar grain yield was observed in Jun15 (55.3bsk/ac), Jul 15 (55.0 bsk/ac) and Jul 30 (54.3bsk/ac)**
- ✓ **Grain yield significantly decreased as the sowing date late**
- ✓ **The lowest grain yield was observed in Sep 15 (39.4bsk/ac)**
- ✓ **In order to obtain the maximum grain yield, sowing date should not be later than Jul 30.**

Vegetative and Flowering Stages of Pawsan Bay Kyar

Flowering Stages of Pawsan Bay Kyar

Thank you for your kind attention

Kyi kyi Oo

Ph- 09794529181

Gmail- kkyiooagri@gmail.com