



*Short communication*

## **Effect of season on success of air layering in water apple in red laterite zone of West Bengal**

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### **ABSTRACT**

**An experiment was conducted during 2004-05 on farmers' field at Jhargram to work out optimum time for air layering in water apple. Results revealed that air layering performed during June and July resulted in highest rooting success (100%) with maximum field establishment (100%). Considering overall performance, the months of June and July can be recommended for air layering in water apple in red laterite zone of West Bengal.**

**Key words :** Air layering, water apple, season, West Bengal

Waterapple [*Syzygium aqueum* (Berm. f.) Alston], a member of the family Myrtaceae, is a tropical fruit plant cultivated in Assam, Meghalaya and, to a limited scale in West Bengal. Water apple is locally called jamrul, gives handsome returns to farmers of North 24-Parganas district of West Bengal. The crop has also been popularized in red laterite zone of West Bengal. The taste of the fruit is very good due to dry climatic conditions prevalent during flowering and fruiting. The crop is conventionally propagated by layering but success rate is said to be low (Biswas and Roy, 1983). As no investigation has been made in the red lateritic zone of West Bengal, where the climate is completely different from that in other parts of the state, an experiment was set up to find out congenial time for air layering in water apple.

The experiment was conducted in a private orchard at Jhargram, Paschim Midnapore, West Bengal. Air layering was done on 10<sup>th</sup> and 25<sup>th</sup> of every month from June to November in 2004 and 2005. Eight-year old water apple plants were used in the study. Each time, thirty layers were prepared with three replications in a randomized block design on 10-12 month old shoots of 3.5 cm diameter. The layers were detached from the plant when roots were clearly visible. Five rooted layers from each replication were selected randomly for recording observations. The remaining layers were planted in polybags and placed in the nursery for studies on field establishment. Data on establishment was recorded 90 days

after detachment. Data on root number of layers, time taken for separation of layers, root growth and establishment of layers were collected and statistically analyzed.

Data presented in Table 1 indicate that the highest number of rooted layers (100%) was recorded when layering was done from 10<sup>th</sup> June to 25<sup>th</sup> July, whereas establishment percentage was maximum (100%) from 10<sup>th</sup> June to 25<sup>th</sup> August, followed by 10<sup>th</sup> September. After 10<sup>th</sup> September, it showed a decreasing trend and was zero on 10<sup>th</sup> November, when rainy season completely ceased. It was interesting to note that the percentage of rooted layers in water apple was maximum during the rainy season. Meteorological data (Table 2) indicate that a maximum temperature of 40.3°C and a minimum of 25.2°C, with relative humidity of 95% at 7.00 am and 51% at 2.00 pm are congenial for getting higher percentage of rooted layers of water apple in the red laterite zone of West Bengal. The maximum percentage of rooted layers was recorded in rainy season (June to July); this may be attributed to the prevalent favourable weather conditions which fostered better root formation and development. Suitability of air layering in rainy season (June to September) in many fruit crops has also been advocated earlier by many workers (Sharma and Grewal, 1989; Ghosh, 1998; Ghosh and Banik, 2008). For separation of rooted layers from the mother plant, a minimum of 80 days were required during September-October, while, during June-July, it took a maximum of 110 days.

**Table 1. Effect of season on success of air layering in water apple\***

Date of layering	Number of rooted layers (%)	Days taken for detachment of layer (days)	Number of roots/layer	Length of longest root (cm)	Establishment of rooted layer (%)
10 <sup>th</sup> June	100 (84.26)	110	10.0	8.5	100 (84.26)
25 <sup>th</sup> June	100 (84.26)	110	10.8	10.0	100 (84.26)
10 <sup>th</sup> July	100 (84.26)	100	11.5	11.6	100 (84.26)
25 <sup>th</sup> July	100 (84.26)	95	11.0	11.0	100 (84.26)
10 <sup>th</sup> August	85 (67.21)	95	11.2	9.0	100 (84.26)
25 <sup>th</sup> August	80 (63.43)	90	9.0	8.4	100 (84.26)
10 <sup>th</sup> September	60 (50.77)	80	7.0	7.0	95 (77.08)
25 <sup>th</sup> September	35 (36.27)	80	5.0	5.2	60 (50.77)
10 <sup>th</sup> October	30 (33.21)	80	3.4	4.0	60 (50.77)
25 <sup>th</sup> October	25 (30.00)	80	3.2	3.8	60 (50.77)
10 <sup>th</sup> November	0 (0.00)	-	-	-	0 (0.00)
25 <sup>th</sup> November	0 (0.00)	-	-	-	0 (0.00)
S.Em ±	1.4	2.0	0.2	0.2	1.9
C.D. ( <i>P</i> =0.05)	4.2	5.8	0.6	0.5	5.6

Figures in the brackets are angular transformed value

\* The results are the average of 2004 and 2005

**Table 2. Meteorological data during the period of investigation**

Month	Temperature (°C)		Humidity (%)		Rainfall (mm)	Number of rainy days
	Maximum	Minimum	Maximum	Minimum		
1 <sup>st</sup> to 15 <sup>th</sup> June	40.3	28.7	81	51	11.4	1
16 <sup>th</sup> to 30 <sup>th</sup> June	37.7	27.5	87	58	154.1	4
1 <sup>st</sup> to 15 <sup>th</sup> July	32.0	25.2	94	80	199.6	7
16 <sup>th</sup> to 31 <sup>st</sup> July	33.2	25.5	95	75	119.4	7
1 <sup>st</sup> to 15 <sup>th</sup> August	33.4	26.3	90	68	142.7	5
16 <sup>th</sup> to 31 <sup>st</sup> August	34.1	25.7	94	66	203.2	5
1 <sup>st</sup> to 15 <sup>th</sup> September	32.9	25.4	95	78	211.0	7
16 <sup>th</sup> to 30 <sup>th</sup> September	33.4	25.2	94	71	33.0	3
1 <sup>st</sup> to 15 <sup>th</sup> October	33.2	23.8	97	69	178.7	4
16 <sup>th</sup> to 31 <sup>st</sup> October	29.8	22.5	95	75	18.3	2
1 <sup>st</sup> to 15 <sup>th</sup> November	30.8	16.8	90	47	0	-
16 <sup>th</sup> to 30 <sup>th</sup> November	29.5	12.9	90	39	0	-

Field establishment of rooted layers is considered to be an important observation in any layering experiment, as, the ultimate aim is to get maximum number of plant surviving under field conditions. Results from Table 1 indicate that establishment of rooted layers was highest (100%) when the operation was done during 10<sup>th</sup> June to 25<sup>th</sup> August, followed by 10<sup>th</sup> September, and, it reduced thereafter. It is clear from data in Table 1 that root growth was maximum in layers prepared on 10<sup>th</sup> July which resulted in highest root number (11.5) and longest root length (11.6 cm), followed by 25<sup>th</sup> July. Considering the production of maximum number of rooted layers and their establishment, the months of June and July are the best, followed by August, for air layering in water apple in red laterite zone of West Bengal.

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