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Effect of time and widths of girdling on economics of mango (*Mangifera indica* L.) cv. Alphonso

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Abstract
A field experiment was conducted at AES, NAU, Paria and RHRS, ACHF, NAU, Navsari in randomized block design with factorial concept comprising four treatments of girdling width *viz.*, 0.75 cm (W_1), 1.00 cm (W_2), 1.25 cm (W_3) and 1.50 cm (W_4) and three treatments of girdling time *i.e.* 15th July (T_1), 15th August (T_2) and 15th September (T_3) of girdling time as along with control. The treatments were replicated thrice. Results of present investigation revealed that girdling during 15th July with 1.50 cm width was gave maximum net realization and B: C ratio. In control *vs* rest of the treatment analysis, treated treatments gave significantly higher maximum net realization and B: C ratio as compared to control (un-girdled).

Keywords: Widths, Economics, Mangifera indica, Alphonso

1. Introduction
For our country, mango an important foreign exchange earner, with an earning of Rs. 110.5 crores from the export of 60,551 tons of fresh fruits and Rs. 241.99 crores from the export of 89,514 tons of processed products (Anon., 2012) [1]. Uttar Pradesh, Bihar, Andhra Pradesh, Karnataka, Tamil Nadu, Gujarat and Maharashtra are the major mango growing states in India. With the successful implementation of Employment Guarantee Scheme (EGS) linked to horticultural development programme from 1990 onwards, Gujarat state is emerging as the leading mango growing state, currently occupying the area 142.69 thousand ha with a total production of 1125.61 thousand metric tons of mango from productive orchards bearing area of 1.96 lakh ha.
However, excessive fruit drop that occurs at different stages of fruit growth till harvest is considered as one of the long standing unresolved problems, directly and substantially contributing to its poor yield along with other problems.

Materials and methods
A field experiment was conducted at AES, NAU, Paria and RHRS, ACHF, NAU, Navsari in randomized block design with factorial concept comprising four treatments of girdling width *viz.*, 0.75 cm (W_1), 1.00 cm (W_2), 1.25 cm (W_3) and 1.50 cm (W_4) and three treatments of girdling time *i.e.* 15th July (T_1), 15th August (T_2) and 15th September (T_3) of girdling time as along with control. The treatments were replicated thrice.
Girdling practiced mainly on secondary branches (50-60%) of the plants. Selected healthy plants having five or more than five secondary branches. Use of sharp pruning saw and small scale measurement tape for management of proper width of girdled portion. Girdling was done very carefully without damage of xylem tissue, only cut were made between peel and xylem. After girdling, applied the copper oxychloride 50 % WP paste on girdled portion for protection of girdled portion.

Results and Discussion
Maximum net realization and higher B: C ratio were obtained in 1.50 cm girdling width (W_4) treatment and minimum net realization and higher B: C ratio conformed in 0.75 cm girdling width (W_1) treatment. This might be due to the girdling helps to more enhancement of carbohydrate availability has been associated with an improvement fruit yield (Poll-van Der *et al.*, 1991) [2] which leads to increased net realization and B: C ratio.
Among the different time of girdling, 15th July (T_1) treatment gave maximum net realization and higher B: C ratio and minimum recorded in 15th September (T_3) treatment. This might be due to the earlier girdling increased carbohydrates content in leaves which gave the maximum fruit yield (Poll-van Der *et al*, 1991) [2] but cost of treatments and fixed costs were similar in all girdled treatments which lead to increased net realization and higher B: C ratio.

Table 1: Effect of different treatments of girdling time and girdling widths on economics of mango cv. Alphonso (Pooled).

Treatments	Fruit Yield (Kg/ha)	Treatment Cost (Rs./ha)	Harvesting Cost (Rs./ha)	Fixed Cost (Rs./ha)	Cost of Cultivation (Rs./ha)	Gross Return (Rs./ha)	Net Realization (Rs./ha)	BCR
Width of girdling (W)								
W_1	8175	1700	8175	45940	55815	245251	189436	3.39
W_2	8437	1700	8437	45940	56077	253099	197022	3.51
W_3	8804	1700	8804	45940	56444	264109	207666	3.68
W_4	9742	1700	9742	45940	57382	292266	234883	4.09
Time of girdling (T)								
T_1	9420	1700	9420	45940	57060	282605	225545	3.95
T_2	8791	1700	8791	45940	56431	263736	207305	3.67

T_3	8157	1700	8157	45940	55797	244703	188906	3.39
Treated *vs* Control								
Treated	8789	1700	8789	45940	56429	263681	207252	3.67
Control	7189	0	7189	45940	53129	215682	162552	3.06

Cost of Copper oxychloride: Rs. 500/kg
Labour cost: Rs. 1200
Cost of cultivation: Cost of insecticide, pesticide, Irrigation, Cost of paclobutrazol (Rs. 4500/lit.)
Retail Price of Alphonso mango fruits: Rs. 30/Kg

References

1. Anonymous. Horticultural Database. National Horticulture Board, Ministry of Horticulture, New Delhi, 2012 http://www.nhb.gov.in/are-apro/Indian%20 Horticulture%202013.pdf
2. Poll-van Der D, Miller JE, Allan P. The effect of girdling on the physiological factors controlling bud take, bud burst and scion growth in citrus. J South African Soc Hort Sci. 1991; 1:55-58.