

RESEARCH REPORT
ON
Effect of Jinong on Litchi (*Litchi chinensis* Sonn.)

Submitted to
Elegant fashion Fiber Chemicals Limited



Submitted By
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Mr. A.K. Guin
Divisional Manager
Elegant fashion Fiber Chemicals Limited]
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Dear Mr. Guin,

This has reference to the project of Elegant Fashion Fiber Chemicals Ltd. in operation at this institute. Kindly find enclosed herewith the progress report of the experiments on litchi conducted at Horticulture Research Centre, Pattharchatta, G.B.P.U.A. & T., Pantnagar for necessary action at your end.

Thanking you, with regards.

Your sincerely

R.Lal
20-7-07
(R.L. Lal)

Encl: Copy of the report

INTRODUCTION

Litchi (*Litchi chinensis* Sonn.) is the most important subtropical evergreen fruit tree which belongs to the family of Sapindaceae and subfamily Napeleae. It is admitted that the Litchi is originated from South China but according to Blume, Cochin-China and the Philippine Island are the lands of origin of Litchi. Litchi reached to Eastern India first via Burma (Myanmar) by the end of seventeenth century and thereafter by the end of eighteenth century, it was introduced to Bengal. It spread in other part of India from Bengal.

Litchi is commercially grown in Northern Bihar (Muzaffarpur and Darbhanga), sub mountain Districts of Uttar Pradesh (Saharanpur and some extent in Muzaffarnagar), in West Bengal (near Hoogly) and in Uttarakhand it is grown in parts of Udham Singh Nagar, Dehradun, Nainital, Pithoragarh and Pauri Garhwal.

According to the latest report of Litchi Export Zone the area and productivity of Litchi in Uttarakhand are 8800 ha and 7 M ton per ha respectively. It is also be successfully cultivated in Tarai area of Uttar Pradesh. Neelgiri hills of South India, cultivated in Gurudaspur of Punjab, Araku valley of Andhra Pradesh and Kangra valley of Himanchal Pradesh.

India ranks second in the world from the production point of view, although it is not grown as extensively as China. The production of fresh fruit of Litchi in India is about 412 thousand Mt. The area under Litchi cultivation is very meager about 53.6 thousand ha which comes to 1.37 per cent of the total area under fruits of 3886.6 thousand ha. Besides China and India,

the other litchi growing countries are Myanmar, South Africa, Hawaii, Mauritius, U.S.A. (Florida and California) and West Indies.

The Jinong liquid, Herbal Plant care and organic fertilizer was used to improve the quality of fruit in relation to their size, colour, TSS/ acid ratio, total sugar and ascorbic acid etc. The Jinong liquid and organic fertilizer which containing Plant Bio-regulators and micronutrients like Fe, Mn, Cu, Zn, Mo, NPK, Vitamins, amino acids etc. which was used to improve the growth of plant as well as yield and quality of litchi.

Production of quality of litchi is jeopardised by several problems like fruit cracking and browning which may be managed by the use of product like jinong containing plant bio-regulators and micronutrients. Similarly herbal plant care was used to minimize the problem of insect pest.

Uttarakhand litchis have strong export potential but in past wrong agricultural practices like heavy use of chemical pesticides and poor quality fruits resulted in return of whole consignment. Another aspect of use of botanical pesticides to maintain the ecological balance. Therefore, present study entitled "Effect of Jinong on litchi (*Litchi chinensis* Sonn) was undertaken.

It aimed at :

1. Effect on reproductive characters
2. Effect on fruit yield
3. Effect on fruit quality

TECHNICAL PROGRAMME

Treatments

One Month before Flowering

The soil around the stem made loose for about half a meter radius and 50 ml Jinong liquid and 15 gm Jinong sea weed granular was dissolved in 15 litre of water and poured in the loose soil around the stem on January 15, 2007.

Jinong liquid was mixed with water in 1:1 ratio and required quantity was applied at 200 mm of stem height just above the soil on same date as above.

At the time of flowering

Litchi trees were sprayed with Jinong liquid 3 ml and 3 ml Plant Care (Herbal pesticide) per litre of water on February 12, 2007.

At fruit set stage (Pea size) to maturity:

First spray was made when the fruits were 4-5 mm in size on April 20th, 2007 and another two applications were made at 3 weeks interval. After every spray water supplied in each plant for its best result.

Experimental Material

Seventeen years old bearing litchi trees of cv. Rose Scented of uniform vigour and size were selected for the present studies.

Table 1 : Effect of Jinong on litchi

Characters		Treatment	
		Control	Treated
Size of panicle (cm)		24.87	25.81
Total number of flowers/panicle		633.30	658.68
Male flower		485.25	505.90
Female flower		148.00	152.78
Sex ratio		3.28	3.31
Fruit set		58.50	62.55
Fruit retention		10.25	12.35
Size of fruit (cm)	Length	3.40	3.58
	Width	2.90	3.00
Fruit cracking (%)		15.60	10.80
Number of fruit per kg		48.50	43.80
Yield per tree (kg)		82.50	129.50
Average fruit weight (g)		19.99	22.60
Average weight (g) of	Peel	2.08	2.32
	Seed	3.36	3.73
	Pulp	14.55	16.50
Total soluble solids (Brix)		18.20	19.35
Tiratable acidity (%)		0.72	0.663
Total sugar (%)		11.61	12.44

RESULTS

Data presented in Table 1 revealed that maximum panicle length (25.81 cm) was recorded under those trees which were treated with Jinong while control trees showed minimum panicle length (24.87 cm).

The number of male flower including hermaphrodite with functionally male and the number of hermaphrodite flower with functionally female were recorded 505.9 and 152.78, respectively under those trees which were treated with Jinong while control trees showed 485.25 and 148.00 male and female flowers, respectively.

Highest sex ratio (3.31) was recorded with Jinong treated plants. However, it was lowest with control (3.28).

The number of fruit set per panicle was recorded maximum (62.55) with Jinong while control tree showed minimum fruit set (58.50).

The highest fruit retention 12.35 was observed with application of Jinong while control trees showed minimum 10.25 fruit per panicle at the time of harvest.

The maximum length and width of fruit at maturity was observed 3.58 and 3.00 cm, respectively under those trees which were treated with Jinong while control trees showed minimum length and width i.e. 3.4 and 2.9 cm, respectively.

The minimum fruit cracking was recorded under those trees which were treated with Jinong (10.80), while control trees showed maximum fruit cracking (15.60 %).

The minimum number of fruits per kg was recorded under those trees which were treated with Jinong (43.8) while control trees showed maximum fruits per kg (48.5)



Plate 1: Effect of Treatment



Plate 2: Control

The highest yield per tree was observed with jinong treated plants (129.50 kg) and control trees were produced minimum fruit yield (82.5 kg)

The maximum average fruit weight (22.60 g) was recorded under those trees which were treated with the Jinong, while control trees showed minimum fruit weight (19.99 g).

The maximum weight of peel, seed, pulp was recorded 2.32, 3.73 and 16.50 g, respectively under those trees which were treated with Jinong while control trees showed 2.08, 3.36 and 14.55 g, respectively.

The maximum total soluble solids (Brix) was recorded 19.35 under those trees which were treated with Jinong, while control trees produced minimum 18.20° Brix.

The minimum titratable acidity was recorded 0.663 % under those trees which were treated with Jinong while control trees showed maximum titratable acidity 0.72 %.

The total sugar % was observed 12.44 under those trees which were treated with Jinong while control trees showed minimum 11.61%.

CONCLUSION

On the basis of one year results it seems that for obtaining maximum yields of excellent fruit quality, the Jinong liquid fertilizer, herbal plant care and Jinong sea weed organic fertilizer may be applied on the litchi trees. However, the results need to be confirmed again and may be recommended for the application in the farmers after a long term (atleast three years) and multilocational trial. Plan of trial and observations to be recorded should be modified in consultation with the experts.

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