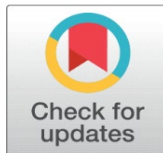


# KNOWLEDGE AND ADOPTION OF LEVEL OF JASMINE AS AN INTERCROP IN COCONUT CULTIVARS OF TUMKUR DISTRICT, KARNATAKA

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## ABSTRACT

The study was conducted purposively selected Tumkur block in Tumkur district of Karnataka. Six villages were selected purposively and from each selected village 20 farmers were selected randomly thus 120 respondents constituting the sample size for present study. Data were collected by using personal interview method. The collected data were tabulated, analysed and interpreted with the help of appropriate statistical tools. Majority of farmers were found having medium level of knowledge and adoption towards jasmine as an intercrop with coconut. Age, Education, Annual Income were found positive and significant correlation with their knowledge and adoption of intercrop. The intercrops (Coconut+ Jasmine) benefit cost ratio is around 1.92.

**Keywords:** Knowledge, Adoption, Intercrop, Jasmine, Coconut

## 1. INTRODUCTION

Intercrop means the two or more crops are grown in same seasons on the same piece of land, where it enhances the efficient and sustainable utilization of resource, increases the production and productivity of land, suppresses the weeds, pests and diseases etc.

Coconut cultivars have a wide opportunity to adopt many intercrops in coconut, because of its natural habitats like, its roots growth around 2meters its trunk on top of soil hence only 25-30 per cent of land was consumed by the coconut crop. Hence we can take up subsidiary crop which is complimentary to both the crops. Some intercrops which are recommended to adopt in between coconut palms are,

Legumes and pulses: Groundnut, horse gram, cowpea, sun flower

Tubers: Tapioca, sweet potato, yams, colocasia, amorphophallus

Spices and condiments: Ginger, turmeric, chilly, vanilla, pepper, nutmeg, cinnamon, clove

Fruit plants: Banana, pineapple, papaya

Floriculture plants: Orchids, anthurium, heliconia, jasmine, marigold

Medicinal and aromatic plants: vetiver, kacholam, arrowroot, chittadalodakam, thippali, aloevera, chittaratha, neelayamari, sathavari, oorilia, moovila, patchouli, etc.

Beverage crop: Cocoa

Therefore, the present study “Knowledge and Adoption level of respondents towards jasmine (*Jasminum multiflorum*) as a intercrop in coconut cultivars of Tumkur district, Karnataka” was planned with the following specific objectives,

- 1) To access the socio-economic status of the respondent.
- 2) To access the knowledge of the respondent regarding jasmine cultivation as a intercrop.
- 3) To access the adoption level of the respondent regarding of jasmine as intercrop in coconut field.
- 4) To study the economic feasibility of jasmine as intercrop.
- 5) Find out the problem faced by the respondent who are practicing jasmine as intercrop in coconut cultivation and seek their suggestion to overcome that problem.

## 2. METHODOLOGY

The present study was purposively undertaken in Tumkur block in Tumkur district of Karnataka state. Six villages were purposively selected from the selected block on the basis of higher number of farmers practicing intercrop (Coconut+ Jasmine). From each selected village twenty farmers were selected randomly by making a sample of 120 respondents. Pretested interview schedule were used for collection of data. The collected data were classified, tabulated and analysed the data.

The present study was confined to ex-post facto research design. The independent variables were measured by using suitable scale and procedure adopted by various researchers in past with due modification. The dependent variable taken in this study was knowledge and adoption towards intercrop (Coconut+ Jasmine) which measured by develop structured schedule.

## 3. RESULTS AND DISCUSSION

Socio-economic characteristics of respondents:

The socio-economical, characteristics of the respondents were studied and the data have given below.

**Table 1** Distribution of respondents by the socio-economic status

(n=120)

| Age                  |           |            |
|----------------------|-----------|------------|
| Category             | Frequency | Percentage |
| Young (22-36 years)  | 48        | 40.00      |
| Middle (37-51 years) | 51        | 42.50      |
| Old (>52 years)      | 21        | 17.50      |
| Education            |           |            |
| Illiterate           | 37        | 30.84      |
| Primary School       | 42        | 35.00      |
| Middle School        | 25        | 20.83      |
| High School          | 13        | 10.84      |
| Pre-University       | 1         | 0.83       |
| Graduate and above   | 2         | 1.66       |
| Land holding         |           |            |
| Small (up to 1ha)    | 67        | 55.83      |

|                              |     |       |
|------------------------------|-----|-------|
| Medium (1-2ha)               | 48  | 40.00 |
| Big (>2 ha)                  | 5   | 4.17  |
| <b>Annual income</b>         |     |       |
| Low (upto1 lakh)             | 56  | 46.66 |
| Medium (1-2 lakh)            | 49  | 40.84 |
| High (>2 lakh)               | 15  | 12.50 |
| <b>Farming Experience</b>    |     |       |
| Up-to 5 years                | 1   | 0.83  |
| 5-10 years                   |     | 00    |
| 10-15years                   | 15  | 12.50 |
| 15-20years                   | 26  | 21.66 |
| 20-25 years                  | 37  | 30.83 |
| 25-30 years                  | 41  | 34.16 |
| <b>Source of information</b> |     |       |
| Co- operatives               | 78  | 65.00 |
| Progressive Farmers          | 66  | 55.00 |
| Neighbors                    | 82  | 68.33 |
| Relatives                    | 112 | 93.33 |
| Radio                        | 32  | 26.66 |
| Television                   | 52  | 43.33 |
| Friends                      | 97  | 80.83 |

Knowledge and Adoption of respondents towards intercrop (Coconut + Jasmine)

**Table 2** Distribution of respondents according to their knowledge and adoption level regarding jasminum multiflorum as an intercrop in coconut.

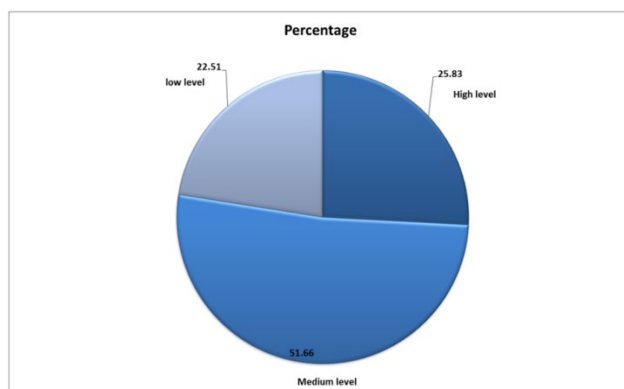
(n=120)

| Level of Knowledge (Score) | Frequency | Percentage |
|----------------------------|-----------|------------|
| High level (30-36)         | 31        | 25.83      |
| Medium Level (22-29)       | 74        | 61.66      |
| Low level (15-21)          | 15        | 12.51      |
| total                      | 120       | 100        |

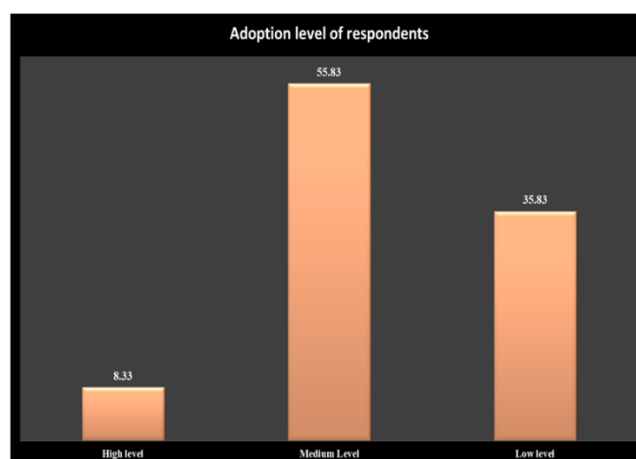
| Adoption level |                |           |            |
|----------------|----------------|-----------|------------|
| Category       | Adoption score | Frequency | Percentage |
| High level     | 28-33          | 10        | 8.34       |
| Medium Level   | 22-27          | 67        | 55.83      |
| Low level      | 15-21          | 43        | 35.83      |

|       |  |        |        |
|-------|--|--------|--------|
| total |  | 120.00 | 100.00 |
|-------|--|--------|--------|

### Knowledge level



### Adoption level



**Knowledge and adoption of respondents towards intercrop (coconut +jasmine):** Table2 indicates that the majority (51.66%), of respondents possessed medium level knowledge, followed by 25.83 per cent and 22.51 per cent of respondents possessed high and low level of knowledge about jasmine as an intercrop, respectively. The majority (55.83%) of respondents had medium level of adoption regarding intercrop (coconut +jasmine). While, 35.83 and 8.34 per cent respondents had low and high level of adoption towards jasmine as intercrop in coconut. The similar results were observed by of Ramakrishna Rao et al. (2008), Sasidhar Reddy et al. (2007) and Puspendra Singh Naruka and Sangram Singh (2003)

Relationship between the selected socio-economic characteristics and knowledge and adoption towards jasminum multiflorum as intercrop in coconut.

**Table 3** Relationship between the selected socio-economic characteristics and knowledge and adoption towards intercrop (coconut + Jasmine).

(n=120)

| Knowledge level |                       |                                    |
|-----------------|-----------------------|------------------------------------|
| Sl.no.          | Independent variables | Correlation coefficient('r' value) |
| 1.              | Age                   | 0.03705(NS)                        |
| 2.              | Education             | 0.186618**                         |
| 3.              | Size of land holding  | 0.223023*                          |

|                |                       |              |
|----------------|-----------------------|--------------|
| 4.             | Farming Experience    | 0.362207*    |
| 5.             | Source of information | 0.024733(NS) |
| 6.             | Annual income         | 0.256747*    |
| Adoption level |                       |              |
| 1.             | Age                   | 0.027009(NS) |
| 2.             | Education             | 0.178185**   |
| 3.             | Size of land holding  | 0.213529*    |
| 4.             | Farming Experience    | 0.319598*    |
| 5.             | Source of information | 0.081001(NS) |
| 6.             | Annual income         | 0.23164*     |

\* = significant at 0.05 level of probability.

\*\* =significant at 0.01 level of probability.

NS = non-significant.

Table 3 Out of six independent variables of respondents, variable viz, education, size of land holdings, farming experience, and annual income was found significant correlation with their respondents knowledge on jasmine as intercrop. Where age and source of information of farmers were non significantly associated with their knowledge on jasmine as intercrop in coconut. The similar findings also reported by Puspendra Singh Naruka and Sangram Singh, (2003).

Out of six independent variables four variables are significant association observed with their adoption towards jasmine as intercrop in coconut. The variable viz. age of the respondents were non significantly associated with their adoption of intercrop. Reaming variable viz., source of information was found to have non- significant correlation with their adoption towards intercrop (Coconut+ Jasmine). The findings is in support of Anburani, A and Vidhya Priyadharshini, H., (2011).

### Economic Analysis of intercrop (Coconut + Jasmine)

#### Factor wise Distribution Cost of intercrop per Hectare/Year.

| Establishment Cost |                                 |                                              |           |           |
|--------------------|---------------------------------|----------------------------------------------|-----------|-----------|
| Sl.no              | Particulars Cost                | Distribution of Respondents by Land Holdings |           |           |
|                    |                                 | 1st Group                                    | 2nd Group | 3rd Group |
| 1                  | Human Labour                    |                                              |           |           |
| A.                 | Family Labour                   | 20000                                        | 20000     | 0         |
| B.                 | Hired Labour                    |                                              |           | 20000     |
| 2                  | JCB Power Used In Farm          | 1950                                         | 2600      | 3250      |
| 3                  | Cost Of Seedlings               | 9000                                         | 18000     | 27000     |
| 4                  | Cost of Fertilizers And Manures | 5000                                         | 10000     | 15000     |
| 5                  | Plant Protection                | 500                                          | 1000      | 1000      |
| 6                  | Irrigation Charges              | 990                                          | 990       | 990       |
| 6                  | Interest on Working Capital     | 2958                                         | 4383      | 5603      |
| 7                  | Land Revenue/ year              | 25                                           | 50        | 75        |
| 8                  | Depreciation on Fixed Capital   | 150                                          | 150       | 150       |
| 9                  | Rental Value of land            | 25000                                        | 25000     | 25000     |
| 10                 | Interest on Fixed Capital       | 2098                                         | 2100      | 2102      |
|                    | Total Establishment Cost        | 65720                                        | 81673     | 100170    |

The above shows that, the total establishment cost means average first year cost of intercrop (Coconut + Jasmine), groups are categorised by respondents land holdings, where average cost of expenditure in first year by 1st group is around Rs.65000, 2nd group around Rs.81000 & 3rd group around 1 lakh per hectare.

#### Average year wise maintenance cost of Intercrop per hectare.

| Sl.no | Particulars | 2 nd year | 3 rd Year | 4 th & Subsequent Years |
|-------|-------------|-----------|-----------|-------------------------|
|-------|-------------|-----------|-----------|-------------------------|

|    |                                    |               |               |               |
|----|------------------------------------|---------------|---------------|---------------|
| 1  | Cost of Laborers                   |               |               |               |
| A. | Family Laborers                    | 64200 (82.3%) | 88800 (85.5%) | 88800 (85.5%) |
| B. | Hired Laborers                     |               |               |               |
| 2  | Cost of Fertilizers & Manures      | 11300 (14.4%) | 12000 (11.6%) | 12000 (11.6%) |
| 3  | Cost of Plant Protection chemicals | 2500 (3.2%)   | 3000 (2.7%)   | 3000 (2.7%)   |
| 4  | Irrigation Charge                  | 990 (1.25%)   | 990 (0.94%)   | 990 (0.94%)   |
|    | Total                              | 78990         | 104700        | 104700        |
|    |                                    | 100%          | 100%          | 100%          |

The above table shows that, the average cost maintenance of intercrop per year; in that more than 80 per cent cost will be expenditure on labourers due to daily harvesting. And also cost of fertilizers and manures are around 10 per cent, cost of plant protection management is between 2-3 per cent because of low knowledge on pest & disease management respectively.

**Table No. 4.6.3:** Average Returns per Hectare of Intercrop per year.

| Sl.no          | Particulars                                    | 2nd year | 3rd Year | From 4th year onwards |
|----------------|------------------------------------------------|----------|----------|-----------------------|
| <b>Jasmine</b> |                                                |          |          |                       |
| 1.             | Average yield                                  | 2nd year | 3rd Year | From 4th year onwards |
| a.             | Jasmine Flower yield in kg per 30 plants/ Year | 315      | 431      | 450                   |
| b.             | Average Sale Price of jasmine/ month           | 8130     |          |                       |
| c.             | Gross Income                                   | 85365    | 116801   | 121950                |
| <b>Coconut</b> |                                                |          |          |                       |
| 2.             | Average yield                                  | 2nd year | 3rd Year | From 4th year onwards |
| a.             | Nuts yield                                     | 0        | 2.13     | 5.3                   |
| b.             | Average Sale price of Copra                    | 15000    |          |                       |
| c.             | Gross Income                                   | 0        | 31950    | 79500                 |
| 3              | Total Gross Return                             | 85365    | 148751   | 201450                |

The above table shows that the average returns from the intercrop per year, where coconut yield will start at 3rd onwards but jasmine yield starts from 2nd year its self, but its yield will be stabilised after 4 -5 years. In 2nd year total gross return is Rs. 85365, in 3 rd year Rs. 148751 and in 4th year on wards Rs. 201450 respectively.

**Table No. 4.6.4:** Net returns, Benefit and cost ratio.

| Sl.no | Particulars                      | 1st Year | 2 nd year | 3rd Year | From 4th Year Onwards | 5th Year |
|-------|----------------------------------|----------|-----------|----------|-----------------------|----------|
| 1     | Average Expenditure on Intercrop | 65720    | 78990     | 104700   | 104700                | 104700   |
| 2     | Gross Returns                    | 0        | 85365     | 148751   | 201450                | 201450   |
| 3     | Net Returns                      | 0        | -59345    | -15294   | 81456                 | 96750    |
| 4     | B:C Ratio                        | 0        | 1.08      | 1.42     | 1.92                  | 1.92     |

The above table shows that, the net returns of intercrop per year where the net returns of intercrop started from 2nd year is Rs. -59345, in 3rd year Rs. -15294, in 4th year Rs. 81456 & from 5th year on wards Rs. 96750 Respectively, and where benefit cost ratio of this project s 1.92, hence this project returns will be Rs. 1.92when tis project invested by Rs. 1. This finding gains the support from the findings Severino S. Magat et al (2007) on coconut + intercrop and Singaravelu, S., and Dr. Rajasekaran, R., (2013) on jasmine.

## 4. CONCLUSIONS

It is concluded from the present study thatjasminum multiflorum as an intercrop in coconut is well known among the respondents. The socio-economic status of respondents is at medium level. It was evident that there was a difference in knowledge of respondents about improved practices of intercrop (coconut+ jasmine), in case of adoption of improved practices of intercrop. Respondents were found medium level of adoption of improved practices. It was found

that education, annual income, land holdings, and farming experience had positive and significant correlation effect on adoption of improved practices of intercrop (coconut+ jasmine). Most of the respondents had faced the problems with lack of adequate information and inputs at right time, non-availability of laborers for flower harvesting, with subsidy on fertilizers and insecticides is not given commensurate with the existing market price, and also subsidies provide for cropping practices. Respondents have suggested that agricultural subsidy should be providing regularly and adequate information and training about the pest and disease management and various schemes of horticulture should be there.

At last, it is concluded that intercrop (coconut+ jasmine) have little bit impact/extent on the respondents and for their socio-economic development as well as improvement of their knowledge & adoption level.

## CONFLICT OF INTERESTS

None.

## ACKNOWLEDGMENTS

None.

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